ANSWER SHEET FOR PRACTICE TEST 2

Name: _____

Date: ____/____/____

School: _____

Class: _____

Completely darken ovals with a No. 2 pencil. If you make a mistake, be sure to erase mark completely. Erase all stray marks.

Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank.

PART 1

1	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	20	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	39	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	58	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
2	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	21	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	40	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	59	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
3	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	22	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	41	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	60	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
4	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	23	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	42	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	61	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
5	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	24	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	43	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	62	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
6	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	25	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	44	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	63	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
7	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	26	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	45	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	64	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
8	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	27	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	46	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	65	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
9	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	28	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	47	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	66	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
10	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	29	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	48	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	67	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
11	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	30	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	49	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	68	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
12	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	31	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	50	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	69	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
13	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	32	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	51	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	70	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
14	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	33	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	52	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	71	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
15	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	34	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	53	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	72	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
16	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	35	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	54	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	73	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
17	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	36	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	55	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	74	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
18	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	37	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	56	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	75	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
19	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	38	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	57	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	76	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃

PART 2

1	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	16	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	31	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	46	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
2	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	17	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	32	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	47	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
3	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	18	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	33	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	48	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
4	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	19	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	34	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	49	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
5	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	20	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	35	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	50	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
6	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	21	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	36	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	51	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
7	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	22	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	37	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	52	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
8	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	23	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	38	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	53	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
9	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	24	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	39	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	54	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
10	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	25	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	40	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	55	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
11	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	26	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	41	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	56	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
12	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	27	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	42	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	57	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
13	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	28	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	43	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	58	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃
14	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	29	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	44	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	59	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃
15	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	30	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃	45	⊂A⊃	⊂B⊃	⊂C⊃	⊂D⊃	⊂E⊃	60	⊂F⊃	⊂G⊃	⊂H⊃	⊂J⊃	⊂K⊃

BE SURE TO ERASE ANY ERRORS OR STRAY MARKS COMPLETELY.

DO NOT MARK IN THIS AREA

⊂ ⊃ ⊂ ⊃

Use a No. 2 pencil only. Be sure each mark is dark and completely fills the intended oval. Completely erase any errors or stray marks.

Start with number 1 for each new section. If a section has fewer questions than answer spaces, leave the extra answer spaces blank.

PART 3

1 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**11** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**21** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**31** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
2 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**12** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**22** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**32** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
3 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**13** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**23** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**33** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
4 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**14** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**24** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**34** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
5 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**15** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**25** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**35** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
6 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**16** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**26** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**36** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
7 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**17** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**27** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**37** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
8 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**18** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**28** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**38** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
9 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**19** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**29** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**39** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
10 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**20** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**30** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**40** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃

PART 4

1 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**11** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**21** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**31** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
2 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**12** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**22** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**32** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
3 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**13** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**23** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**33** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
4 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**14** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**24** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**34** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
5 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**15** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**25** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**35** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
6 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**16** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**26** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**36** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
7 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**17** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**27** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**37** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
8 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**18** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**28** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**38** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃
9 ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**19** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**29** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃	**39** ⊂A⊃ ⊂B⊃ ⊂C⊃ ⊂D⊃ ⊂E⊃
10 ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**20** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**30** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃	**40** ⊂F⊃ ⊂G⊃ ⊂H⊃ ⊂J⊃ ⊂K⊃

BE SURE TO ERASE ANY ERRORS OR STRAY MARKS COMPLETELY.

Practice Test

2

English

75 Questions ■ Time—45 Minutes

Directions: This test consists of five passages in which particular words or phrases are underlined and numbered. Alongside the passage, you will see alternative words and phrases that could be substituted for the underlined part. Select the alternative that expresses the idea most clearly and correctly or that best fits the style and tone of the entire passage. If the original version is best, select "No Change."

The test also includes questions about entire paragraphs and the passage as a whole. These questions are identified by a number in a box.

After you select the correct answer for each question, on your answer sheet, mark the oval corresponding to the correct answer.

Essay I

My Day with Monet at Giverny

[1]

One of my most memorable trips I went on (1) was to Claude Monet's garden at Giverny, about an hour and a half from Paris. Although a (2) chilly, late autumn day, the garden was still in bloom. Gardeners (3) rotate flower plantings by season from spring through the end of fall.

[2]

On the day my companion and I (4) were there, dahlias were everywhere, in a multitude of colors and shades—red, pink, yellow, orange, purple, lavender. Leggy pink and magenta cosmos waved in the cool breeze. The last roses of the season were so massive they could hardly hold their heads up.

[3]

(1) A trellis rises up from the railing around the front porch, (5) frames the house in greenery. (2) Inside and out, (6) Monet's house is simply a marvel. Painted pink ivy covers large swaths of the facade. (3) The day I visited, the trellis was not in bloom, but in summer little red blooms peak from the green leaves. [7]

[4]

The house itself is (8) filled with light and color. Every room has several large windows. Walls are painted light blue, see green, tan, and pale yellow. The kitchen walls are covered with blue and white tiles. Monet was a collector of Japanese prints, which are displayed through (9) the house. Monet's interest in Japanese art is further reflected (10) in the sparseness of the furnishings and the use of wicker for some of the chairs.

[5]

But the most amazing element is the Japanese water garden. I have long been (11) a lover of Monet's series of water lily paintings, I had expected to see a huge pond. Well, first I had (12) expected that Monet's house would be set (12) on a large estate, but it's right in the (12) village of Giverny. (12) The water garden is across the street from Monet's house and is about the size of an Olympic swimming pool.

[6]

(1) Even on a cloudy day in autumn, the garden was beautiful. (2) Willows hung over the water and were reflected in its stillness. (3) Feathery dried grasses were all that lined the shore. (4) Gray vines, all that is left (13) of the wisteria at this time of year, entwined the railings of the Japanese footbridge. (5) Only a few fading wisteria blooms dotted the scattered water lily pads. (6) Above all, there was a quietness. [14]

1. **A.** NO CHANGE
B. in my life
C. of mine
D. OMIT the underlined portion.

2. **F.** NO CHANGE
G. Although it was a
H. Although the day was a
J. It was a

3. **A.** NO CHANGE
B. bloom, although
C. bloom because the gardeners
D. bloom, and the gardeners

4. **F.** NO CHANGE
G. I and my companion
H. me and my companion
J. my companion and me

5. **A.** NO CHANGE
B. porch and
C. porch; and it
D. porch: the trellis

6. **F.** NO CHANGE
G. In and out,
H. Both on the inside and the outside,
J. OMIT the underlined portion.

7. Which of the following is the most logical order for the sentences of Paragraph 3?

A. NO CHANGE
B. 2, 1, 3
C. 3, 2, 1
D. 3, 1, 2

8. **F.** NO CHANGE
G. inside is
H. house
J. house is itself

9. **A.** NO CHANGE
B. around
C. in
D. throughout

10. **F.** NO CHANGE
G. further reflects
H. also is reflected
J. is reflected

11. **A.** NO CHANGE
B. Long a lover
C. For a long time I've been
D. I admit that I am

12. Which of the following proposals for the underlined sentence makes most sense in the context of Paragraph 5 as a whole?

F. NO CHANGE
G. Move it to the beginning of the paragraph.
H. Move it to the end of the paragraph.
J. Delete the sentence.

13. **A.** NO CHANGE
B. all that was
C. all that's
D. which were all that was

14. The writer wishes to incorporate the following sentence into Paragraph 6:

In summer, the sight of the footbridge draped with long purple clusters of wisteria blooms must be dazzling.

Where would be the best place for this sentence?

F. At the beginning of Paragraph 6
G. Between sentence 1 and sentence 2
H. Between sentence 4 and sentence 5
J. Between sentence 5 and sentence 6

Item 15 poses a question about the essay as a whole.

15. Suppose the writer were to eliminate Paragraph 4. This omission would cause the essay as a whole to lose primarily:

- **A.** relevant details about Monet's tastes and preferences in art.
- **B.** irrelevant details about the Japanese influence on Monet.
- **C.** a digression from the essay's central concern about Monet's garden.
- **D.** information that establishes the setting for what's described in the other paragraphs.

Essay II

Globalization

The 1990s saw the rise of the concept of globalization, which is the idea that the economies of the world are becoming ever more interrelated. In reality, the process has been at work for several decades.

A number of factors accounts (16) for this interconnectedness: the (17) reduction or elimination of trade barriers in the form of tariffs, the rise of multinationals, and the free flow of capital and workers.

A major cause of globalization has been (18) the reduction or elimination of trade barriers in the form of tariffs. (18) Tariffs are taxes added to the cost of imports, which raises their price (19) to consumers. (19) By decreasing or eliminating tariffs, the price of imported goods is allowed to seek its own level, which may be lower than a similarly domestically produced good.

Another factor that has impacted how and where companies do business is the growth of the multinationals. Thousands of U.S. companies have offices in other nations. Thousands (20) of other nations' companies have presences (21) in the United States. In fact, many companies that Americans typically think of as U.S. in origin are actually owned by corporations in other nations. This is true from publishing companies (22) to food manufacturers to music producers. (22) The free flow of money and workers (23) from nation to nation is another aspect of (23) globalization. (23) The European Union has eliminated the need for passports and visas for traveling between member nations. Before developing it's (24) own economic problems, the

Japanese were heavy investors in foreign businesses such as (25) real estate and entertainment companies in the United States. [26]

The question is whether all this globalization is a good thing or a bad thing (27) for the people of the world. As the recession in the U.S. in 2001 and 2002 showed, the interconnectedness of economies can depress activity across many nations when a high-flying economy begins to lose economic steam. Often, it's the low-level factory worker who is hurt. As economies slow, the demand for goods decline, (28) and people lose their jobs. Economists note that international trade theory is not based on (29) reality but on the ideal. (29) In the ideal world, any worker who loses a job because low-priced imports force his or her company to lay off employees will immediately find a new job in an industry that competes better in the marketplace. [30]

16. **F.** NO CHANGE
G. Some factors are accounting
H. The number of factors accounts
J. Numerous factors account

17. **A.** NO CHANGE
B. interconnectedness, the
C. interconnectedness; the
D. interconnectedness. The

18. Which of the following proposals regarding the underlined sentence provides the best transition from the first paragraph to the second paragraph?

F. NO CHANGE
G. At the end of the sentence, add a comma followed by the clause *the first factor identified above*.
H. Replace the sentence with the following: *One major cause of globalization involves tariffs.*
J. Delete the underlined sentence.

19. **A.** NO CHANGE
B. thereby raising prices consumers pay for imports.
C. which increases prices to consumers.
D. and then consumers pay more for them.

20. **F.** NO CHANGE
G. nations, but thousands
H. nations; in contrast, thousands
J. nations. Similarly,

21. **A.** NO CHANGE
B. have presence
C. maintain a presence
D. are present

22. Which of the following proposals for the underlined sentence would be most effective in achieving a smooth flow of ideas in the paragraph?

- **F.** NO CHANGE
- **G.** Delete the phrase *This is true,* and insert the remainder between *origin* and *are* in the preceding sentence, set off by commas.
- **H.** Switch the position of this sentence with the position of the preceding one.
- **J.** Insert this sentence between the paragraph's first and second sentences.

23.
- **A.** NO CHANGE
- **B.** Money and workers, flow freely from nation to nation—another aspect of globalization.
- **C.** Another aspect of globalization is that, from nation to nation, money and workers flow freely.
- **D.** Yet another aspect of globalization involves the free flow of money and workers from nation to nation.

24.
- **F.** NO CHANGE
- **G.** its
- **H.** they're
- **J.** their

25.
- **A.** NO CHANGE
- **B.** businesses, for example
- **C.** business such as
- **D.** businesses in

26. At this point in the essay, the writer is considering adding the following sentence:

Multinationals in the U.S. are now pouring large amounts of capital into China, hoping to reap huge profits from China's market of six billion people.

Would adding this sentence contribute to the understanding of the essay?

- **F.** Yes, because this paragraph's primary concern is with the rise of multinational corporations as a factor in globalization.
- **G.** Yes, because this sentence provides a present-day example of the free flow of money from nation to nation.
- **H.** No, because the sentence provides a poor transition to the next paragraph, which never discusses either U.S. multinationals or China.
- **J.** No, because the writer has already supplied ample evidence of the free flow of money today from nation to nation.

27.
- **A.** NO CHANGE
- **B.** either good or bad
- **C.** good or it's bad
- **D.** a good or a bad thing

28.
- **F.** NO CHANGE
- **G.** declines
- **H.** will decline
- **J.** might decline

29.
- **A.** NO CHANGE
- **B.** based on the ideal that is not reality.
- **C.** based on the ideal rather than on reality.
- **D.** not based on reality. It is based on the ideal.

Item 30 poses a question about the essay as a whole.

30. An editor has commented that the writer has not ended the essay properly. Considering the essay's overall structure and flow of information, which of the following would be most effective as an additional, and final, sentence of the essay?

- **F.** The unavoidable conclusion is that economists, as a group, are more concerned with theoretical macroeconomic models than with the real concerns and problems of the world's people.
- **G.** Therefore, globalization holds strong promise for improved living standards around the world, as well as a greater variety of lower-cost products and services for all its people.
- **H.** In the real world, however, the evidence appears to show that, inevitable as globalization might be at this point, the world's peoples might have been better off, on balance, without it.
- **J.** A number of economists believe that free trade will force industries to modernize, thereby becoming more efficient and producing goods at lower cost to the consumer.

Essay III

[*The following paragraphs may or may not be arranged in the best possible order. The last item will ask you to choose the most effective order for the paragraphs as numbered.*]

The Magic of Special Effects

[1]

The movies are one place where magic can come true. Sights are seen in movies (31) that you might never hope to see in real life like (32) ocean liners sinking, earthquakes swallowing cities, planets exploding. The movies are also the only place outside your imagination where you can see things that never and might never exist (33) at all (33), including rampaging monsters, battles in outer space, and sky-high cities of the future, to list just a few.

[2]

Effects artists have developed many tricks (34) and techniques over the years. (34) Working closely with movie directors, producers, and actors, effects artists play a growing role in movie making today. Special-effects techniques are useful to movie makers in several ways.

Some movie scenes would be prohibitively
35
costly to produce using ordinary methods,
35
so they can be used to save money. For ex-
35
ample, to show an imaginary city, it would cost
36
many millions of dollars to build real buildings, roads, and so on. The clever using of special
37
effects can cut those costs dramatically.

[3]

All these are examples of the movie magic known as special effects, and they're the work of an elite group of amazingly clever and skilled
38
effects artists. The real magic lies in how
39
their able to make a man in a gorilla suit into
40
King Kong, or transform tiny plastic models into huge space ships, or turn instructions in a computer into images of a world that no one has ever imagined before.

[4]

Most important, special effects allow moviemakers to film scenes that would otherwise be impossible. They let movies show non-existent, even impossible worlds. Special effects are the tools of the moviemaker for communi-
41
cating a unique imaginative experience. And, after all, that's one of the reasons why we all go
42
to the movies.

[5]

(1) Battle or disaster scenes involving explosions, floods, or avalanches can be very dangerous to film. (2) Effects artists can simulate disaster scenes in ways that gives
43
audiences the thrill of witnessing a dangerous event without exposing actors to real hazards. (3) Special effects can also make moviemaking safer. (4) Even in comedies, sometimes characters are placed in harm's way. [44]

31. **A.** NO CHANGE
B. In movies, sights are seen
C. A person sees sights
D. You can see sights

32. **F.** NO CHANGE
G. life;
H. life, such as
J. life; examples are

33. **A.** NO CHANGE
B. might never exist at all
C. don't and might never exist
D. never existed and might never exist

34. Which of the following proposals for the underlined sentence, if implemented, would be most effective in achieving a logical flow of ideas in the essay?

F. NO CHANGE
G. Move the sentence to the beginning of Paragraph 5.
H. Move the sentence to the beginning of Paragraph 4.
J. Delete the underlined sentence.

35. **A.** NO CHANGE
B. Some movie scenes would be prohibitively costly to produce using ordinary methods; special effects are useful to save money.
C. They can be used to save money wherever movie scenes are prohibitively costly to produce using ordinary methods.
D. They can be used wherever movie scenes are prohibitively costly to produce using ordinary methods to save money.

36. **F.** NO CHANGE
G. for the purpose to
H. if you wanted to
J. Omit the underlined portion.

37. **A.** NO CHANGE
B. Cleverly using
C. Clever use of
D. Using clever

38. **F.** NO CHANGE
G. amazing clever
H. amazing and clever
J. cleverly amazing

39. **A.** NO CHANGE
B. However, the
C. And the
D. OMIT the underlined portion.

40. **F.** NO CHANGE
G. they have the ability
H. they're able
J. their capable

41. **A.** NO CHANGE
B. are the moviemaker's tool
C. is the moviemaker's tool
D. are tools that the moviemaker uses

42. **F.** NO CHANGE
G. one of the reasons
H. one reason why
J. a reason

43. **A.** NO CHANGE
B. a way that gives
C. ways that give
D. a way giving

44. Which of the following is the most logical order of sentences in Paragraph 5?

F. 3, 1, 2, 4
G. 4, 2, 1, 3
H. 1, 2, 3, 4
J. 2, 4, 1, 3

Item 45 poses a question about the essay as a whole.

45. For the sake of unity and coherence of the essay, which of the following provides the most effective ordering of the paragraphs?

A. 1, 2, 3, 4, 5
B. 2, 1, 3, 1, 4
C. 2, 4, 1, 3, 5
D. 1, 3, 2, 5, 4

Essay IV

[*The following paragraphs may or may not be arranged in the best possible order. The last item will ask you to choose the most effective order for the paragraphs as numbered.*]

Benjamin Franklin: Unsung Hero

[1]

One of Benjamin Franklin's first acts as minister to France was to request that French troops be sent to the United States to fight alongside Washington's forces. The request was 46 denied, but France did provide money. 46 The American army was badly in need of 46 uniforms, food, weapons, and ammunition. 46 In 1781, the French finally dispatched troops and a contingent of the French navy. It was these ships that blockaded the British at Yorktown, which forced Great Britain to surrender its claim to the former colonies. Lord Cornwallis and his British soldiers marched out of 47 Yorktown between two rows of French and American soldiers.

[2]

When the war ended, Franklin stayed on in France, and 48 negotiated the final peace treaty between the United States and Great Britain. When it was signed, he returned to Pennsylvania, where they elected him 49 President of the Pennsylvania Executive Council. During 50 the Constitutional Convention was convened in 1787, Franklin was among its many 51 illustrious members. At the time of his latest role, he was 81. Franklin died three years later.

[3]

"Benjamin Franklin: Unsung Hero" may seem like a strange title for a biographical sketch of the man, but surprisingly 52 few people realize the important role he played in the American Revolution. When most people think of 53 Franklin, they think of him as 53 the inventor of the lightning rod and perhaps the Franklin stove, overshadowed 54 in history books by Washington, Jefferson, and even the Marquis de Lafayette.

[4]

No one would be more surprised than Franklin at how his role had been (55) overlooked. Franklin spent almost eighteen years in London as an agent for Pennsylvania and several other colonies. His reputation as a serious scientist, philosopher, as well as (56) his wit and charm, gained him entrance to the drawing rooms and studies of many important and politically influential men and women in England and on (57) the continent. When war broke out in 1776, the Continental Congress sent Franklin, then seventy years old, to France to lead a commission to gain France's support. It was through Franklin's efforts that, in 1778, France and the United States signed a treaty pledging its (58) support for American independence. [59] Once diplomatic relations were established, Franklin was named United States minister to France.

46. **F.** NO CHANGE
G. Although the request was denied, France did provide money to supply the American army with uniforms, food, weapons, and ammunition, all of which were badly needed.
H. The American army, which badly needed uniforms, food, weapons, and ammunition, was denied the request but provided money by France.
J. The request was denied. The American army badly needed uniforms, food, weapons, and ammunition, so France provided money.

47. Which of the following is the most effective in light of the information and ideas conveyed in Paragraph 1 as a whole?

A. NO CHANGE
B. decided to leave
C. ceremoniously left
D. were marched out of

48. **F.** NO CHANGE
G. France and
H. France; and
J. France and he

49. **A.** NO CHANGE
B. they elected him as
C. he was elected
D. an election made him

50. **F.** NO CHANGE
G. Whenever
H. While
J. When

51. **A.** NO CHANGE
B. many
C. their
D. OMIT the underlined portion.

52. **F.** NO CHANGE
G. surprising
H. it is a surprise that
J. surprised

53. **A.** NO CHANGE
B. Most people think of Franklin as
C. Most of the people think that Franklin was
D. Franklin is mostly thought of as

54. Which of the following would be most effective in helping to convey the main point of the Paragraph 3?

F. NO CHANGE
G. stove. He was overshadowed
H. stove. Instead, he was overshadowed
J. stove, as well as a person overshadowed

55. **A.** NO CHANGE
B. is
C. has been
D. was being

56. **F.** NO CHANGE
G. scientist and philosopher, as well as
H. scientist, as a philosopher, as well as
J. scientist and philosopher and

57. **A.** NO CHANGE
B. in
C. through
D. OMIT the underlined portion.

58. **F.** NO CHANGE
G. which pledged
H. in pledged
J. in which France pledged its

59. At this point in the essay, the writer is considering adding the following sentence:

Had it not been for Franklin's letter of introduction to Washington on Lafayette's behalf, the Marquis de Lafayette would never have served in the war.

Would adding this sentence contribute to the understanding of the essay?

A. Yes, because it helps explain why Franklin would have been surprised that his political career has been largely overlooked.
B. Yes, because it helps show that Franklin's wit served him in influencing politically influential people.
C. No, because the essay provides ample evidence of Franklin's key role in the American Revolution without the additional sentence.
D. No, because the sentence provides no information about Franklin's influence over politically influential people in Europe.

Item 60 poses a question about the essay as a whole.

60. For the sake of unity and coherence of the essay, which of the following provides the most effective sequence of this essay's paragraphs?

F. 1, 2, 3, 4
G. 3, 1, 2, 4
H. 3, 4, 1, 2
J. 1, 2, 4, 3

Essay V

A New Deal for America

[1]

During the Great Depression of the 1930s, relief was much needed. People had no jobs, no food, and were losing their shelter. Franklin D. Roosevelt, president at the time, decided to initiate a much needed system of relief, he called it the "New Deal." There were three stages to the New Deal: relief, recovery, and reform. 63

[2]

(1) During the first stage, the relief stage, the Civilian Conservation Corps (CCC) and the Federal Emergency Relief Act (FERA) was established. (2) The CCC provided aid in unemployment, mainly for youths from cities. (3) It not only put them to work but the environment was also conserved. (4) They planted forests, fought forest fires, made dams, and created roads and trails. (5) The CCC succeeded in providing jobs for the unemployed youths and protecting the environment. (6) The FERA granted direct financial relief to the needy. It was meant only for short-term relief: Roosevelt did not want the needy to grow dependent on free money.

[3]

During the second, or recovery, stage, the Tennessee Valley Authority (TVA) was created to put legions of people to work building the most extensive electric power system ever devised. Also, new federal laws created minimum wage and maximum work-week laws and prohibited child labor, aiding overworked and underpaid people. Though it helped, Latinos, African Americans, and Asians were not part of the system until decades later.

[4]

During the third, or reform, stage, the Social Security Act was mainly created to aid the elderly, provide pensions funded by taxes, and provide unemployment benefits to protect dependent mothers and children. Another act

safeguarded the rights of workers, providing legal protection against employers which attempted (72) to fire labor organizers, suppress strikes, or stifle unions.

[5]

The relief provided by the New Deal's various laws and programs, Roosevelt believed, were (73) part of government's responsibility. [74] If the government had not stepped in, the country might very well have crumbled. While some were given jobs and direct financial aid, others were given hope. With hope, people were able to attempt a better life. (75) The government provided temporary relief, but the rest was up to the individual.

61. **A.** NO CHANGE
B. food, and
C. had no food, and
D. no food, and they

62. **F.** NO CHANGE
G. relief, called
H. relief and he called it
J. relief he called

63. For the sake of unity and coherence, which of the following editorial proposals involving the transition from Paragraph 1 to Paragraph 2 is most effective?

A. NO CHANGE
B. Omit the paragraph break here, and begin Paragraph 2 with what is currently the last sentence of Paragraph 1.
C. Move the last sentence of Paragraph 1 to the beginning of that paragraph.
D. OMIT the paragraph break between Paragraphs 1 and 2.

64. **F.** NO CHANGE
G. relief stage,
H. first relief stage,
J. stage of relief,

65. **A.** NO CHANGE
B. unemployment aid,
C. employment,
D. unemployment,

66. **F.** NO CHANGE
G. but also conserved the environment.
H. and it conserved the environment.
J. as well as conserving the environment.

67. Which of the following proposals for sentence 5 would be most appropriate in the context of the paragraph in which it appears?

A. NO CHANGE
B. Move the sentence so that it immediately follows sentence 1.
C. Replace the sentence with the following: *The CCC succeeded in protecting the environment and in providing jobs for the unemployed youths.*
D. Delete the sentence. (Do not replace it with any other sentence.)

68. **F.** NO CHANGE
G. relief, Roosevelt
H. relief; Roosevelt
J. relief from Roosevelt who

69. **A.** NO CHANGE
B. minimum wage laws and maximum work-week laws
C. minimum and maximum wage and work-week requirements
D. a minimum wage and a maximum work week

70. **F.** NO CHANGE
G. they
H. the laws
J. they were

71. **A.** NO CHANGE
B. created mainly
C. created—mainly
D. created in the main

72. **F.** NO CHANGE
G. attempts
H. attempting
J. OMIT the underlined portion.

73. **A.** NO CHANGE
B. was
C. are
D. is to be

74. Which of the following would be the most relevant and logical sentence to insert at this point in the essay?

F. The American people were hurting, but they had not given up hope.
G. After all, a nation cannot function when its people are starving and homeless.
H. The New Deal was one way that Roosevelt carried out what he saw as that responsibility.
J. A government's main function is to ensure the well being of the citizenry.

75. **A.** NO CHANGE
B. were capable to live better.
C. could attempt lives that were better.
D. attempted to better their life.

STOP

Math

60 Questions ■ Time—60 Minutes

Directions: Solve each problem; then, on your answer sheet, mark the oval corresponding to the correct answer.

Be careful not to spend too much time on any one question. Instead, solve as many problems as possible, and then use the remaining time to return to those questions you were unable to answer at first.

You may use a calculator on any problem in this test. However, some problems can best be solved without use of a calculator.

Note: Unless otherwise stated, you can assume that:

1. Diagrams that accompany problems are not necessarily drawn to scale.
2. All figures lie in the same plane.
3. The word "line" refers to a straight line (and lines that appear straight are straight).
4. The word "average" refers to arithmetic mean.

1. Of the 120 students enrolled in a certain class, 40 are sophomores, 44 are juniors, and the remainder are seniors. What percentage of the total number of enrolled students are seniors?

A. 42
B. 40
C. 34
D. 30
E. 24

2. In the standard (x,y) coordinate plane, the distance from point A to point B is 6. Which of the following could be the coordinates of the two points?

F. $A(0,3)$ and $B(6,0)$
G. $A(6,3)$ and $B(0,3)$
H. $A(3,0)$ and $B(0,-3)$
J. $A(0,6)$ and $B(3,-3)$
K. $A(3,3)$ and $B(-3,-3)$

3. Which of the following expressions is a simplified form of $(-2x^2)^4$?

A. $16x^8$
B. $8x^6$
C. $-8x^8$
D. $-16x^6$
E. $-16x^8$

4. If $A = 3$, $AB = -9$, and $BC = -6$, then $C =$

F. 9
G. 3
H. 2
J. -2
K. -3

5. If $\frac{ab}{10} + 5 = a - 2$, for what value of a does b equal 5?

A. -12
B. -4
C. 4
D. 9
E. 14

6. The sum of $\sqrt{.49}$, $\frac{3}{4}$, and 80% =

F. .425
G. 1.59
H. 1.62
J. 2.04
K. 2.25

7. What is the perimeter of a rectangle whose length is three times its width and whose area is 12 square centimeters?

A. 18 centimeters
B. 16 centimeters
C. 15 centimeters
D. 8 centimeters
E. 4 centimeters

8. If $.2t = 2.2 - .6s$ and $.5s = .2t + 1.1$, then $s =$

F. 1
G. 3
H. 10
J. 11
K. 30

9. If the value of XYZ Company stock drops from \$25 per share to \$21 per share, what is the percent of decrease?

A. 20
B. 16
C. 12
D. 8
E. 4

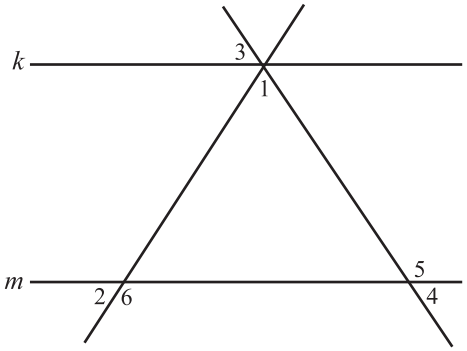
10. If a portion of \$10,000 is invested at 6% and the remaining portion is invested at 5%, and if x represents the amount invested at 6%, what is the annual income in dollars from the 5% investment?

F. $.05(10{,}000 - x)$
G. $.05(x + 10{,}000)$
H. $5(x - 10{,}000)$
J. $5(10{,}000 - x)$
K. $.05(x - 10{,}000)$

11. If $p = (3)(5)(6)(9)(q)$, and if q is a positive integer, then p must be divisible, with no remainder, by all of the following EXCEPT:

A. 27
B. 36
C. 45
D. 54
E. 90

12. In the figure below, if line k is parallel to line m, which of the following equalities must hold?



I. $m\angle 1 = m\angle 2$
II. $m\angle 3 = m\angle 4$
III. $m\angle 5 = m\angle 6$

F. I only
G. II only
H. III only
J. I and III only
K. II and III only

13. In which of the following equations does p vary directly with q as the cube root of q, while q varies inversely with r as the square root of r?

A. $q = \dfrac{p^3}{r^2}$

B. $p = \dfrac{r^3}{\sqrt{q}}$

C. $q = \dfrac{p^3}{\sqrt{r}}$

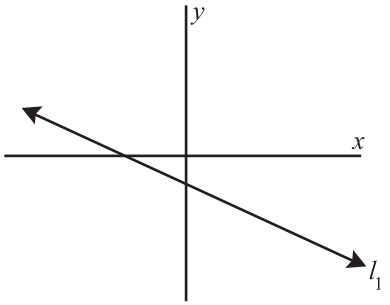
D. $r = \dfrac{\sqrt[3]{p}}{q^2}$

E. $q = \dfrac{\sqrt{r}}{p^3}$

14. In the standard (x,y) coordinate plane, if a triangle with vertices $(3,-1)$, $(-4,1)$, and $(1,-3)$ is translated 2 units up and 3 units to the right, what are the new coordinates of the triangle's vertices?

F. $(5,2)$; $(-2,4)$; $(3,0)$
G. $(6,1)$; $(-1,4)$; $(4,-6)$
H. $(1,0)$; $(-1,3)$; $(-2,1)$
J. $(5,-2)$; $(1,3)$; $(4,-1)$
K. $(6,1)$; $(-1,3)$; $(4,-1)$

15. In the standard (x,y) coordinate plane below, if the scales on both axes are the same, which of the following could be the equation of l_1?



A. $y = \dfrac{2}{3}x - 3$

B. $y = -2x + 1$

C. $y = x + 3$

D. $y = -3x - \dfrac{2}{3}$

E. $y = -\dfrac{2}{3}x - 3$

16. The denominator of a certain fraction is twice as great as the numerator. If 4 were added to both the numerator and denominator, the new fraction would be $\frac{5}{8}$. What is the denominator of the fraction?

F. 3
G. 6
H. 9
J. 12
K. 13

17. In the standard (x,y) coordinate plane, what is the slope of a line that contains the points $(-1,4)$ and $(3,-6)$?

A. $-\frac{5}{2}$
B. -2
C. $-\frac{1}{2}$
D. 1
E. 2

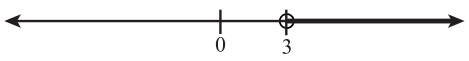
18. A legislature passed a bill into law by a 5:3 margin. No legislator abstained. What part of the votes cast were cast in favor of the motion?

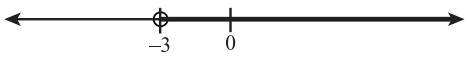
F. $\frac{5}{8}$
G. $\frac{3}{5}$
H. $\frac{8}{15}$
J. $\frac{2}{5}$
K. $\frac{3}{8}$

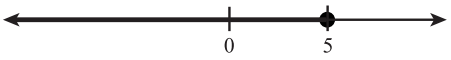
19. In the standard (x,y) coordinate plane, the slope of a line segment with endpoints $(7,-2)$ and (p,q) is -1, and the slope of a line segment with endpoints $(1,-4)$ and (p,q) is $\frac{1}{2}$. What is the value of q?

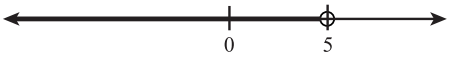
A. $-\frac{3}{2}$
B. $-\frac{4}{3}$
C. $\frac{7}{4}$
D. 4
E. $\frac{19}{3}$

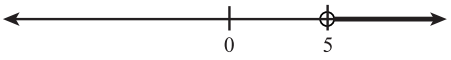
20. When the real number p is multiplied by 3, then the product is decreased by 8, the result is less than 7. Which of the following is the graph of all possible values of p?

F.


G.


H.


J.


K.


21. For what value of q does the equation $4x^2 - \frac{x}{q} + 1 = 0$ have one and only one real-number solution?

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. 2

D. 4

E. 8

22. If one dollar can buy m pieces of paper, how many dollars are needed to buy p reams of paper? (*Note:* 1 ream = 500 pieces of paper)

F. $\frac{p}{500m}$

G. $\frac{m}{500p}$

H. $\frac{500}{p + m}$

J. $\frac{500p}{m}$

K. $500m(p - m)$

23. Eight years from now, Carrie's age will be twice Ben's age. If Carrie's current age is C and Ben's current age is B, which of the following represents Carrie's current age?

A. B

B. $B + 4$

C. $B + 8$

D. $2B + 8$

E. $3B$

24. If $x^2 - y^2 = 16$, and $x + y = 2$, then $y =$

F. -4

G. -3

H. 2

J. 3

K. 5

25. What is the equation of the line that is the perpendicular bisector of the line segment connecting points $(4,-2)$ and $(-3,5)$ in the standard (x,y) coordinate plane?

A. $y = -x + \frac{3}{2}$

B. $y = x + \frac{1}{2}$

C. $y = \frac{3}{2}x - 1$

D. $y = -x + 2$

E. $y = x + 1$

26. If $x > 0$, and if $x + 3$ is a multiple of 3, which of the following is NOT a multiple of 3?

F. x

G. $x + 6$

H. $3x + 5$

J. $2x + 6$

K. $6x + 18$

27. Which of the following integers is the closest to the value for the unit length of one leg of a triangle with hypotenuse 13, if the other leg is 7 units long?

A. 8

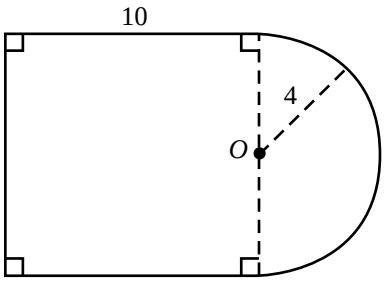
B. 9

C. 10

D. 11

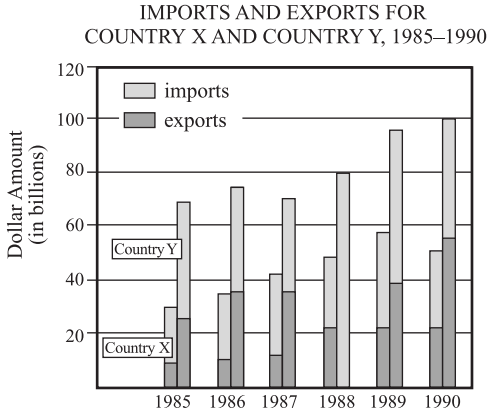
E. 12

28. What is the perimeter of the region shown below, if the curved side is a semicircle?



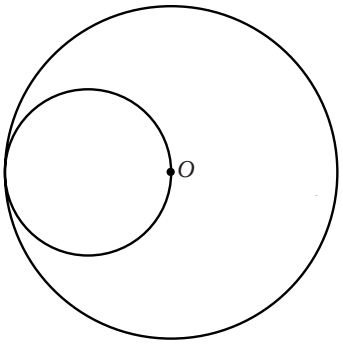
F. $30 + 2\pi$
G. $28 + 4\pi$
H. $30 + 4\pi$
J. $40 + 2\pi$
K. $28 + 8\pi$

29. According to the following chart, during what year was the dollar amount of Country Y's imports approximately twice that of Country X's exports?



A. 1985
B. 1987
C. 1988
D. 1989
E. 1990

30. In the figure below, if O lies at the center of the larger circle, what is the ratio of the smaller circle's area to the larger circle's area?



F. π:12
G. 1:4
H. 2:3π
J. π:15
K. 1:5

31. Patrons at a certain restaurant can select two of three appetizers—fruit, soup, and salad—along with two of three vegetables—carrots, squash, and peas. What is the probability that any patron will select fruit, salad, squash, and peas?

A. $\frac{1}{2}$
B. $\frac{1}{3}$
C. $\frac{1}{6}$
D. $\frac{1}{9}$
E. $\frac{1}{12}$

32. If $P = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $Q = \begin{bmatrix} -3 \\ -2 \end{bmatrix}$, what is the entry in the first row of the second column of product matrix PQ?

F. 12
G. 6
H. -5
J. -12
K. -18

33. Set R: $\{N + 1, 2N + 2, 3N + 3, \ldots\}$ If $N = 2$, what is the 25th term of Set R?

A. 29
B. 48
C. 50
D. 63
E. 75

34. Cynthia drove for seven hours at an average rate of 50 miles per hour (mph) and for one hour at an average rate of 60 mph. What was her average rate for the entire trip?

F. $51\frac{1}{4}$ mph
G. 52 mph
H. $52\frac{1}{2}$ mph
J. $57\frac{1}{2}$ mph
K. $62\frac{1}{2}$ mph

35. If $x + y < 0$, then which of the following represents a positive number for all possible values of x and y?

A. $y - x$
B. xy
C. $\frac{x}{y}$
D. $x - y$
E. $-y - x$

36. $\sqrt[3]{p + q} + 4 = 0$, then $p + q =$

F. -64
G. -16
H. 4
J. 8
K. 64

37. If P percent of 20 is Q , then $P =$

A. $\frac{Q}{20}$
B. $\frac{Q}{5}$
C. $5Q$
D. $10Q$
E. $20Q$

38. If $\log_x 64 = 4$, then the value of x could be

F. 16
G. 8
H. 4
J. 2
K. -4

39. The length of one rectangular horse corral is exactly two thirds the length of another, but the area of the two corrals is the same. If the shorter corral has a length of L and a width of W, which of the following represents the perimeter of the longer corral?

A. $2L + \frac{4}{3}W$

B. $3L + \frac{2}{3}W$

C. $3L + \frac{4}{3}W$

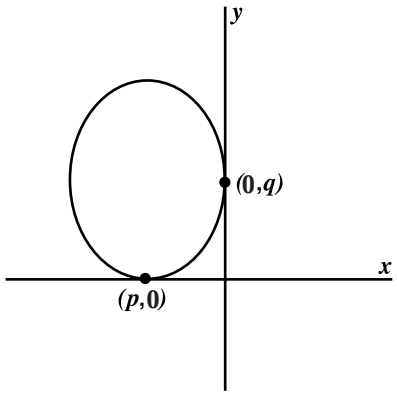
D. $\frac{3}{2}L + W$

E. $3L + \frac{1}{3}W$

40. If $x = -1$, then $x^{-3} + x^{-2} + x^2 + x^3 =$

F. -2
G. -1
H. 0
J. 1
K. 2

41. In the standard (x,y) coordinate plane, an ellipse is tangent to the x-axis and to the y-axis as shown in the graph below. If $|p| < q$, then which of the following is the equation of the ellipse?



A. $\frac{(x-q)^2}{4q^2} + \frac{(y-p)^2}{4p^2} = 1$

B. $\frac{(x+p)^2}{p^2} + \frac{(y-q)^2}{q^2} = 1$

C. $\frac{(x-p)^2}{p^2} + \frac{(y-q)^2}{q^2} = 1$

D. $\frac{(x-p)^2}{2p^2} + \frac{(y-q)^2}{2q^2} = 1$

E. $\frac{(x-p)^2}{q^2} + \frac{(y-q)^2}{p^2} = 1$

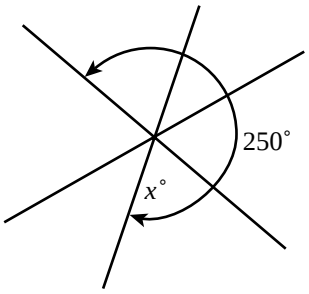
42. If the interior angles of a quadrilateral are in the ratio 1:2:3:4, what is the sum of the degree measures of the two smallest angles?

F. 218°
G. 204°
H. 192°
J. 148°
K. 108°

43. An angle is acute if it measures less than 90°. If one angle of a right triangle measures 30°, what is the cosine of the other acute angle?

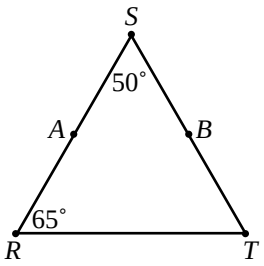
A. 2
B. $\sqrt{3}$
C. 1
D. $\frac{\sqrt{3}}{2}$
E. $\frac{1}{2}$

44. In the figure below, $x =$



F. 50
G. 55
H. 60
J. 70
K. 80

45. In ΔRST below, A is the midpoint of $\overline{RS}$ and B is the midpoint of $\overline{ST}$. All of the following congruencies hold EXCEPT:



A. $\overline{RS} \cong \overline{TS}$
B. $\overline{AS} \cong \overline{BT}$
C. $\overline{RT} \cong \overline{RS}$
D. $\overline{SB} \cong \overline{AR}$
E. $\overline{AR} \cong \overline{BT}$

46. $\frac{\sqrt{10}}{\sqrt{2}} \times \frac{\sqrt{5}}{\sqrt{2}}$

F. $\frac{\sqrt{10}}{2}$
G. $\frac{5\sqrt{2}}{2}$
H. $2\sqrt{5}$
J. 10
K. $\frac{25}{2}$

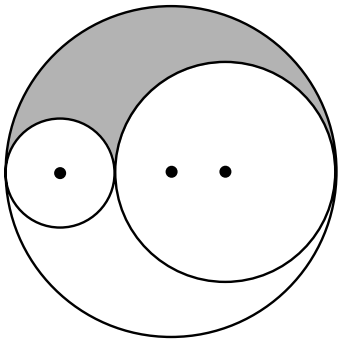
47. Which of the following is NOT equal to 4.23×10^{-2}?

A. $4{,}230 \times 10^{-4}$
B. $.00423 \times 10^{1}$
C. $.423 \times 10^{-1}$
D. 42.3×10^{-3}
E. $.0423 \times 10^{0}$

48. If the average of four numbers is 4, and if the number 6 is added to these four numbers, what is the average of all five numbers?

F. 3
G. $\frac{17}{4}$
H. $\frac{22}{5}$
J. $\frac{9}{2}$
K. 5

49. In the figure below, the centers of all three circles (the three points) lie on the same line. The radius of the middle-sized circle is twice that of the smallest circle. If the radius of the smallest circle is 1, what is the length of the boundary of the shaded region?

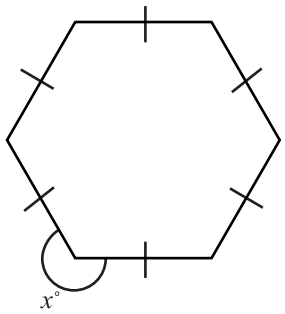


A. 12π
B. 6π
C. 12
D. 3π
E. 9

50. Which of the following is a factor of $x^3 + 3x^2 - 5x - 15$?

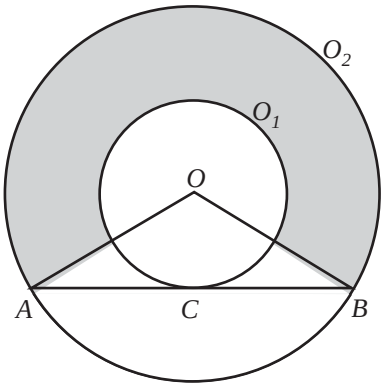
F. $(x^2 - 3)$
G. $(x^2 + 5)$
H. $(x^2 - 5)$
J. $(x - 3)$
K. $(x + 5)$

51. All six sides of the polygon shown below are congruent. What is the value of x?



A. 258
B. 240
C. 220
D. 180
E. 165

52. In the figure below, O_1 and O_2 are concentric circles and $\overline{AB}$ is tangent to O_1 at C. If the radius of O_1 is r and the radius of O_2 is twice as long, what is the area of the shaded region?



F. $\frac{1}{2}\pi r^2$

G. πr^2

H. $\frac{3}{2}\pi r^2$

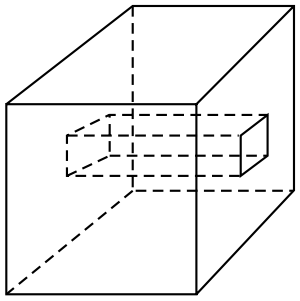
J. $2\pi r^2$

K. $3\pi r^2$

53. One x-intercept of the parabola defined by the equation $y = x^2 + 2x - 3$ is within which of the following intervals?

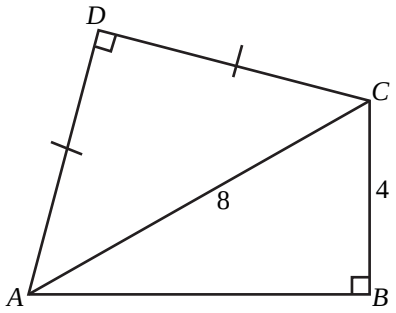
A. $[-6,-4]$
B. $[-2,0]$
C. $[0,2]$
D. $[2,4]$
E. $[3,5]$

54. The figure below shows a solid wooden cube with surface area of 9 square units on each side, except that a 1×1 square hole has been cut through the cube from one side to the opposite side. After the hole is cut, what is the volume of the remaining wood, in cubic units?



F. 21
G. 24
H. 27
J. 30
K. 33

55. In the figure below, if $\overline{AD} \cong \overline{DC}$, what is the perimeter of the quadrilateral that forms the boundary of the total region shown?



A. 18

B. $10 + 6\sqrt{2}$

C. $4 + 4\sqrt{3} + 8\sqrt{2}$

D. $18\sqrt{2}$

E. $16 + 8\sqrt{3}$

56. In a geometric series, each term is a constant multiple of the preceding one. If x and y are the first thwo terms in a geometric series, which of the following represents the third term in the series?

F. $\frac{y^2}{x}$

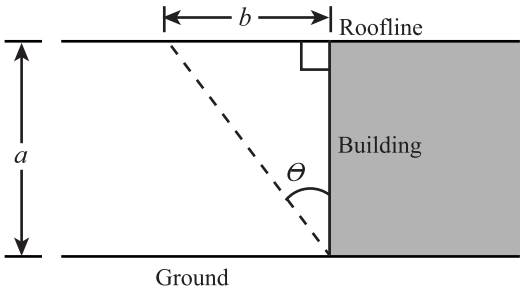
G. $\frac{y}{x}$

H. $\frac{y^2}{x^2}$

J. xy

K. $\frac{x^2}{y}$

57. The figure below shows a wire (represented by the dashed line) connecting the outer edge of a porch roof to the base of the building's wall, creating an angle of θ degrees at the base of the building.



If a and b are the height of the building and width of the porch roof, respectively, which of the following represents the length of wire?

A. $\frac{b}{\cos\theta}$

B. $\frac{a}{\cos\theta}$

C. $\frac{b}{\sin\theta}$

D. $a\cos > \theta$

E. $b\sin\theta$

58. In the standard (x,y) coordinate plane, the graph of $y = 3\sin 3x$ contains all of the following (x,y) pairs EXCEPT:

F. $\left(\frac{4}{3}\pi, 0\right)$

G. $\left(\frac{5}{6}\pi, 3\right)$

H. $\left(\frac{1}{2}\pi, -3\right)$

J. $\left(\frac{\pi}{3}, 0\right)$

K. $\left(\frac{11}{6}\pi, -\frac{3}{2}\right)$

59. If $f(x) = \frac{x}{2}$, then $f(x)^2 \div (f(x))^2 =$

A. x^3

B. 1

C. $2x^2$

D. 2

E. $2x$

60. If $\tan\theta = \frac{5}{12}$, and if $\cos\theta = \frac{12}{13}$, then $\sin\theta =$

F. $\frac{5}{12}$

G. $\frac{5}{13}$

H. $\frac{12}{13}$

J. $\frac{13}{12}$

K. It cannot be determined from the information given.

STOP

Reading

40 Questions ■ Time—35 Minutes

Directions: This test consists of four passages, each followed by several questions. Read each passage and select the best answer for each question following the passage. Then, on your answer sheet, mark the oval corresponding to the best answer.

Passage I—Prose Fiction

Line

Newland Archer was speaking with his fiancée, May Welland. He had failed to stop at his club on the way up from the office where he exercised the profession of the law in the leisurely manner common to well-to-do New Yorkers of his class in the middle of the nineteenth century. He was out of spirits and slightly out of temper, and a haunting horror of doing the same thing every day at the same hour besieged his brain.

"Sameness—sameness!" he muttered, the word running through his head like a persecuting tune as he saw the familiar tall-hatted figures lounging behind the plate glass; and because he usually dropped in at the club at that hour, he had passed by instead. And now he began to talk to May of their own plans, their future, and Mrs. Welland's insistence on a long engagement.

"If you call it long!" May cried. "Isabel Chivers and Reggie were engaged for two years, Grace and Thorley for nearly a year and a half.

"Why aren't we very well off as we are?"

It was the traditional maidenly interrogation, and Archer felt ashamed of himself for finding it childish. No doubt she simply echoed what was said for her, but she was nearing her twenty-second birthday, and he wondered at what age "nice" women like May began to speak for themselves.

"Never, if we won't let them, I suppose," he mused, and recalled his mad outburst to his friend Jackson: "Women ought to be as free as we are—!"

It would soon be his task to take the bandage from this young woman's eyes, and bid her look forth on the world. But how many generations of women before her had descended bandaged to the family vault? He shivered a little, remembering some of the new ideas in his scientific books, and the much-cited instance of the Kentucky cave-fish, which had ceased to develop eyes because they had no use for them. What if, when he had bidden May Welland to open hers,

they could only look out blankly at blankness?

"We might be much better off. We might be truly together—we might travel."

Her face lit up. "That would be lovely," she admitted; she would love to travel. But her mother would not understand their wanting to do things so differently.

"As if the fact that it is different doesn't account for it!" Archer insisted.

"Newland! You're so original!" she exulted.

His heart sank. He saw that he was saying all the things that young men in the same situation were expected to say, and that she was making the answers that instinct and tradition taught her to make—even to the point of calling him original.

"Original! We're all as like each other as those dolls cut out of the same folded paper. We're like patterns stenciled on a wall. Can't you and I strike out for ourselves, May?"

"Goodness—shall we elope?" she laughed.

"If you would—"

"You do love me, Newland! I'm so happy."

"But then—why not be happier?"

"We can't behave like people in novels, though, can we?"

"Why not—why not—why not?"

She looked a little bored by his insistence. She knew very well why they couldn't, but it was troublesome to have to produce a reason. "I'm not clever enough to argue with you. But that kind of thing is rather—vulgar, isn't it?" she suggested, relieved to have hit on a word that would certainly extinguish the whole subject.

"Are you so much afraid, then, of being vulgar?"

She was evidently staggered by this. "Of course I should hate it—and so would you," she rejoined, a trifle irritably.

He stood silent, beating his walking-stick nervously against his shoe-top. Feeling that she had indeed found the right way of closing the discussion, she went on lightheartedly, "Oh, did I tell you that I showed cousin Ellen my engagement ring? She thinks it the most beautiful setting she ever saw. There's nothing like it in Paris, she said. I do love you, Newland, for being so artistic!"

1. It can be inferred from the passage that Newland Archer most yearns for:

- **A.** a comfortable life.
- **B.** high social status.
- **C.** Mrs. Welland's approval.
- **D.** variety in life.

2. May Welland's comments in the third paragraph (lines 22–25) about her and her friends' engagements suggest that she:

- **F.** considers the engagement period planned by her mother to be brief.
- **G.** feels that Newland Archer has insulted her mother.
- **H.** disagrees with her mother about when she should marry Newland Archer.
- **J.** believes that her friends Isabel and Grace were engaged for too long a time.

3. The reference to the Kentucky cave-fish (line 49) helps the reader understand:

- **A.** Newland's support of a woman's fundamental right to equality, of which men have robbed her.
- **B.** Newland's fear that May's upbringing might have rendered her incapable of original thought.
- **C.** May Welland's maidenly interrogations which are true to her conventional upbringing.
- **D.** the trauma experienced by women of the mid-nineteenth century who rebelled against the social order of the times.

4. As revealed in the passage, Newland Archer can best be characterized as:

- **F.** a complacent person with little interest in current affairs.
- **G.** a person with curiosity about new ideas who questions conventional ones.
- **H.** a person of leisurely manner and acceptable disposition.
- **J.** adventurous but frustrated by his financial situation.

5. It can be inferred from the passage that, among New York society in mid-nineteenth century, leisure travel was considered:

- **A.** irresponsible.
- **B.** traditional.
- **C.** uncommon.
- **D.** adventurous.

6. May Welland considers Newland Archer to be all of the following EXCEPT:

- **F.** original.
- **G.** amusing.
- **H.** artistic.
- **J.** clever.

7. May Welland puts an end to the discussion that Newland Archer starts by:

- **A.** declaring his points moot because they would find no support from Mrs. Welland.
- **B.** reminding him that agreeing with him would be an invitation to social disaster.
- **C.** denouncing elopement as too vulgar and hateful for both of them.
- **D.** dismissing elopement as romantic but suitable only for protagonists of romance novels.

8. According to the passage, May Welland is of approximately what age?

- **F.** Eighteen years
- **G.** About twenty-four years
- **H.** Approaching thirty
- **J.** Somewhat less than twenty-two years

9. Archer regards May Welland's responses to what he says as excessively influenced by:

- **A.** her educational background.
- **B.** popular romance novels.
- **C.** social mores and cultural expectations.
- **D.** her friends Isabel, Grace, and Ellen.

10. It can be most reasonably inferred from the passage that Newland Archer's female contemporaries were:

- **F.** discouraged from thinking for themselves.
- **G.** not so self-confident as women of the previous generation.
- **H.** given too much power in decision making.
- **J.** overly argumentative and bossy.

Passage II—Social Studies

Line

When the framers of the Constitution set to work devising the structure of the United States government, it was natural for them to consider the forms already existing in the several states. The three most basic patterns may be referred to as the Virginia, Pennsylvania, and Massachusetts models.

The Virginia model borrowed its central principal, legislative supremacy, from the thinking of the English philosopher John Locke. Locke had favored making the legislature the dominant focus of government power, and he stressed the importance of preventing a monarch, governor, or other executive from usurping that power. In line with Locke's doctrine, Virginia's constitution provided that the governor be chosen by the assembly rather than by the people directly, as were the members of a special governor's council. The approval of this council was necessary for any action by the governor.

Also derived from Locke was Virginia's bicameral legislature, in which both chambers must concur to pass a bill. Thus dividing the legislative power was supposed to prove its domination by any single faction—the so-called "division of powers" which later became an important feature of the national constitution.

Pennsylvania's constitution was probably the most democratic of any in the former colonies. Pennsylvania extended the right to vote to most adult males. (With the exception of Vermont, the other states allowed only property owners to vote; New Jersey alone extended the privilege to women.) Pennsylvanians elected the members of a single-house legislature, as well as an executive council. These bodies jointly selected the council president, who served as the state's chief executive officer; there was no governor. Neither legislators nor council members could remain in office more than four years out of seven.

The most conservative of the models was found in Massachusetts. The legislature here included two chambers. In the house of representatives, the number of legislators for a given district was based on population; in the "aristocratic" senate, representation was based on taxable wealth. The governor could veto legislature, he appointed most state officials, and he was elected independently of the legislature.

As the delegates to the Constitutional Convention began to debate the merits of these varying models, several fault lines began to appear along which the representatives of the former colonies were divided. One such line was geographic. The economic and social differences between the northern and southern states, which would lead, three generations later, to the cataclysm of the Civil War, were already making themselves felt. Dependent chiefly on the exporting of such raw materials as cotton, tobacco, and rice, the southern

states strongly opposed giving Congress the power to regulate international trade, fearing the imposition of onerous taxes or tariffs. Too, the white slaveholders of the south feared federal restrictions on the practice of slavery, which was already a point of controversy between sections of the new nation.

Another dividing line among the states was based on population. The less populous states opposed the notion of allocating political power based on population; they feared having the larger states, especially Virginia, New York, Massachusetts, and Pennsylvania, ride roughshod over their interests. This division to some extent echoed the north-south split, since most of the more populous states were in the north.

The debates over governmental structure quickly focused on the makeup of the legislative branch. The most populous states favored making representation in Congress proportional to population, while the smaller states fought for equality of representation. For a time, it appeared as though the convention might break up over this issue.

The successful resolution was a compromise originally proposed by the delegation from Connecticut, and therefore often referred to as the Connecticut Compromise, or the Great Compromise. According to this plan, which remains in effect to this day, the Congress is a bicameral legislature like those in Virginia and Massachusetts. In the Senate, each state has two representatives, no matter what its size, while seats in the House of Representatives are apportioned by population. Both houses must concur in the passage of legislature, and bills proposing the expenditure of government funds must originate in the House—a precaution demanded by the larger states to protect their financial interests.

The southern states won a series of specific concessions. Although the convention refused to include slaves on a equal basis in the population count for Congressional representation—after all, the slaves were neither citizens nor taxpayers nor voters—it was agreed to count the slave population, a notorious compromise long regarded as a racist blot on the constitution. The north also accepted constitutional clauses forbidding export taxes and preventing Congress from interfering with the slave trade until at least 1808—over twenty years in the future. The sectional differences between north and south, and the simmering issue of slavery, were thus postponed for future generations to face.

11. Based on the passage, under which government model did the governor hold the most extensive powers?

- **A.** Pennsylvania
- **B.** Washington
- **C.** Massachusetts
- **D.** Virginia

12. It can reasonably be inferred that "larger states" (lines 86–87) refers to the states that were:

- **F.** wealthiest.
- **G.** largest in geographic size.
- **H.** most powerful.
- **J.** most populous.

13. As it is used in the passage, the word *onerous* (line 76) most nearly means:

- **A.** beneficial.
- **B.** burdensome.
- **C.** unnecessary.
- **D.** useless.

14. Which of the following former colonies mentioned in the passage was most strongly influenced by the philosophy of John Locke?

- **F.** Virginia
- **G.** Pennsylvania
- **H.** Massachusetts
- **J.** New Jersey

15. As a whole, the passage is best viewed as:

- **A.** an account of how former colonizers devised an effective model of self-governance for the newly independent colonies.
- **B.** an explanation of how pre-existing patterns of governance in the original states influenced the constitution of those states newly united as a nation.
- **C.** a study of how the framers of the U.S. Constitution ultimately solved the problems arising from political and economic differences between the Northern and Southern states.
- **D.** a discourse on the influence of diverse political philosophies on the framers of the U.S. Constitution.

16. Based on the passage, which of the following models of a constitution would an adherent of Locke's philosophy most likely prefer?

- **F.** A constitution that calls for a governing body comprised of two chambers and a jointly selected chief executive officer
- **G.** A conservative constitution that provides for a government made up of representatives based on their taxable wealth
- **H.** A constitution requiring the agreement of both chambers to pass any draft of a proposed law
- **J.** A democratic constitution under which the nominated head of the two chambers holds veto power, for the purpose of avoiding dominance by any particular faction

17. It can be inferred from the passage that the representatives of the southern states were concerned with protecting the interests of all of the following EXCEPT:

- **A.** regulators of international trade.
- **B.** owners of cotton-producing plantations.
- **C.** white slaveholders.
- **D.** exporters of tobacco.

18. The northern states strongly supported the constitutional provision that:

- **F.** prohibited export taxes.
- **G.** prohibited Congressional interference in the slave trade.
- **H.** required that all funding bills originate in the House of Representatives.
- **J.** called for equal representation of all states in the Senate.

19. In what way did the constitution of New Jersey differ from those of the other states?

- **A.** It was the only state to confer the right to vote to slaves.
- **B.** It gave women the privilege to vote.
- **C.** It conferred the right to vote exclusively to property holders.
- **D.** Seats in its legislature were given exclusively to taxpayers.

20. The passage supports all of the following ideas EXCEPT:

- **F.** the debate over how Congressional seats should be apportioned nearly resulted in the failure of the Constitutional Convention.
- **G.** the debate over how the new government was to be structured included the issue of how finding bills should be proposed.
- **H.** the question of the legality of slavery in a democracy was left largely unaddressed by the Constitutional Convention.
- **J.** all major differences between the Northern and Southern states were settled by the time the new Constitution was finally adopted.

Passage III—Humanities

[The essay from which this passage is adapted was written in 1909.]

Line In discussing the value of particular books, I have heard people say—people who were timid about expressing their views of literature in the presence of (5) literary men: "It may be bad from a literary point of view, but there are very good things in it." Or: "I dare say the style is very bad, but really the book is very interesting and suggestive." Or: "I'm (10) not an expert, and so I never bother my head about good style. All I ask for is good matter. And when I have got it, critics may say what they like about the book," and many other similar remarks, (15) all showing that in the minds of the speakers, there existed a notion that style is something supplementary to, and distinguishable from, matter; a sort of notion that a writer who wanted to be (20) classical had first to find and arrange his matter, and then dress it up elegantly in a costume of style, in order to please beings called literary critics.

This is a misapprehension. Style (25) cannot be distinguished from matter. When a writer conceives an idea, he conceives it in a form of words. That form of words constitutes his style, and it is absolutely governed by the idea. The (30) idea can only exist in words, and it can only exist in one form of words. You cannot say exactly the same thing in two different ways. Slightly alter the expression, and you slightly alter the idea. (35) Surely it is obvious that the expression cannot be altered without altering the thing expressed! A writer, having conceived and expressed an idea, may, and probably will, "polish it up." But (40) what does he polish up? To say that he polishes up his style is merely to say that he is polishing up his idea, that he had discovered faults or imperfections in his idea, and is perfecting it. An idea exists in (45) proportion as it is expressed; it exists when it is expressed, and not before. It expresses itself. A clear idea is expressed clearly, and a vague idea vaguely.

You need but take your own case and (50) your own speech. For just as science is the development of common sense, so is literature the development of common

daily speech. The difference between science and common sense is simply one of degree; similarly with speech and literature. When you "know what you think," you succeed in saying what you think, in making yourself understood. When you "don't know what you think," your expressive tongue halts. And note how in daily life the characteristics of your style follow your mood; how tender it is when you are tender, how violent when you are violent. You have said to yourself in moments of emotion: "If only I could write—." You were wrong. You ought to have said: "If only I could think on this high plane." When you have thought clearly, you have never had any difficulty in saying what you thought, though you may occasionally have had some difficulty in keeping it to yourself. And when you cannot express yourself, depend upon it that you have nothing precise to express, and that what incommodes you in sot the vain desire to express, but the vain desire to think more clearly. All this just to illustrate how style and matter are co-existent, and inseparable, and alike.

You cannot have good matter with bad style. Examine the point more closely. A man wishes to convey a fine idea to you. He employs a form of words. That form of words is his style. Having read, you say: "Yes, this idea is fine." The writer had therefore achieved his end. But in what imaginable circumstances can you say: "Yes, this idea is fine, but the style is not fine"? The sole medium of communication between you and the author has been the form of words. The fine idea has reached you. How? In the words, by the words. Hence the fineness must be in the words. You may say, superiorly: "He has expressed himself clumsily, but I can see what he means." By what light? By something in the words, in the style. Moreover, if the style is clumsy, are you sure that you can see what he means? The "matter" is what actually reaches you, and it must necessarily be affected by the style.

In judging the style of an author, you must employ the same canons as you use in judging men. If you do this, you will not be tempted to attach importance to trifles that are negligible. There can be no lasting friendship without respect. If an author's style is such that you cannot respect it, then you may be sure that, despite any present pleasure that you may obtain from that author, there is something wrong with his matter, and that the pleasure will soon evaporate.

If you are undecided upon a question of style, whether leaning to the favorable or to the unfavorable, the most prudent course is to forget that literary style exists. For, indeed, as style is understood by most people who have not analyzed their impression under the influence of literature, there is no such thing as literary style. You cannot divide literature into two elements and say: this matter and that style. Further, the significance and the worth of any other phenomenon: by the exercise of common sense.

Common sense will tell you that nobody, not even a genius, can be simultaneously vulgar and distinguished, or beautiful and ugly, or precise and vague, or tender and harsh. And common sense will therefore tell you that to try to set up vital contradictions between matter and style is absurd.

21. When the people whom the author quotes in the first paragraph remark that "critics may say what they like about the book" (lines 13–14), these people probably mean that:

- **A.** literary critics are not reluctant to express their opinions.
- **B.** ordinary readers are just as qualified as literary critics to critique literary works.
- **C.** what literary critics think of the book is not important to these people.
- **D.** literary critics are more likely than these people to find fault with the book.

22. Which of the following best expresses the "sort of notion" (lines 18–19) the author describes in lines 19–23?

- **F.** Critics generally prefer books written in an elegant style.
- **G.** Critics do not generally praise new books written in outdated styles.
- **H.** Many book writers are not daring enough in their writing style.
- **J.** A book is unlikely to become popular unless written in a classic style.

23. Based on the information in the second paragraph (lines 24–48), with which of the following statements would the author of the passage be LEAST likely to agree?

- **A.** An idea cannot exist apart from its expression.
- **B.** The matter and style of a writing are one and the same.
- **C.** Once expressed, an idea cannot actually be polished up.
- **D.** A clear idea cannot develop from any idea expressed vaguely.

24. Based on the information in the third paragraph (lines 49–80), which of the following can we infer is a difference of degree?

- **F.** The difference between scientific writing and literary writing
- **G.** The difference between an idea and the expression of that idea
- **H.** The difference between common sense and literary sense
- **J.** The difference between literature and common speech

25. According to the passage, if you cannot express yourself, the reason for this inability is that:

- **A.** the ideas in your mind at the time are too vague.
- **B.** you have nothing to say at the time.
- **C.** you are feeling too emotional to express yourself clearly.
- **D.** you are too vain about your ideas.

26. As it is used in the passage, the word *canons* (line 105) most nearly means:

- **F.** forms of respect.
- **G.** set of principles.
- **H.** types of judgments.
- **J.** variety of styles.

27. The author states that "there can be no lasting friendship without respect" (lines 108–109) in order to make the point that:

- **A.** a reader cannot remain friends with a writer unless the reader respects that writer.
- **B.** a writer must not insult the reader, or else the reader will not respect the writer's ideas.
- **C.** unless a reader respects a writer's style, the reader will ultimately lose interest in the writer's ideas.
- **D.** two people can remain friends only if there is continued mutual respect between them.

28. The author of the passage recommends that readers:

- **F.** pay no attention to a writer's style.
- **G.** show more respect for matter than for style.
- **H.** read only classic books and other writings.
- **J.** disregard who wrote whatever they are reading.

29. As it is used in the passage, the word *incommodes* (line 76) most nearly means:

- **A.** displeases.
- **B.** troubles.
- **C.** attracts
- **D.** prompts.

30. Based on the information in the passage, if a reader claims that an author's writing style is polished, what this might actually indicate is that the:

- **F.** reader is thinking clearly.
- **G.** writer has used words that sophisticated people use.
- **H.** reader has misinterpreted the author's ideas.
- **J.** writer's ideas are clear.

Passage IV—Natural Science

Line

If you've ever cupped your hand around a blinking firefly or noticed an eerie glow in the ocean at night, you are familiar with the phenomenon of bioluminescence. The ability of certain plants and animals to emit light has long been a source of fascination to humans. Why do certain species of mushrooms glow? Why are midwater squids designed with ornate light-emitting organs underneath their eyes and ink glands? Why do certain particles and biological detritus floating in the depths of the ocean sparkle after a physical disturbance? Are these light displays simply an example of nature in its most flamboyant mode—a case of "if you've got it, flaunt it"—or do they serve any practical purposes?

As it turns out, the manifestations of bioluminescence are as diverse as they are elegant. Yet virtually all of the known or proposed ways in which bioluminescence functions may be classed under three major rubrics: assisting predation, helping escape from predators, and communicating.

Many examples of the first two uses can be observed in the ocean's midwaters, a zone that extends from about 100 meters deep to a few kilometers below the surface. Almost all of the animals that inhabit the murky depths where sunlight barely penetrates are capable of producing light in one way or another. Certain animals, when feeding, are attracted to a spot of light as a possible food source. Hence, other animals use their own luminescence to attract them. Just in front of the angler fish's mouth is a dangling luminescent ball suspended from a structure attached to its head.

What unwitting marine creatures see as food is really a bait to lure them into the angler fish's gaping maw.

(45) The uses of luminescence to elude predators are just as sophisticated and various. Some creatures take advantage of the scant sunlight in their realm by using bioluminescence as a form of (50) camouflage. The glow generated by photophores, light producing organs, on the undersides of some fishes and squids acts to hide them through a phenomenon known as countershading: the weak (55) downward lighting created by the photophores effectively erases the animals' shadows when viewed from below against the (relatively) lighted waters above.

(60) Some marine animals use bioluminescence more actively in their own defense, turning their predators into prey. For instance, there is the so-called "burglar alarm effect," in which an animal coats (65) an advancing predator with sticky glowing tissue that makes the would-be attacker vulnerable to visually cued hunters—like bank robbers marked by exploding dye packets hidden in stolen (70) currency.

Bioluminescence is used not only in such interspecific feeding frays between predators and prey, but also as an intraspecific communication facilitator. (75) The fireflies that seem to blink on and off randomly in the summer woods are actually male and female members signaling each other during courtship. Certain fish use their luminescence as a (80) kind of Morse code in which the female responds to the flashing of a male fish with its own flash exactly two seconds later, which the male recognizes by its timing.

(85) Bioluminescence clearly functions to help certain species ensure their survival, whether it helps them to trick predators or to mate and produce offspring. Yet, when we look at the larger evolutionary (90) picture, bioluminescence as such is generally considered a "nonessential" characteristic. After all, closely related species and even strains of the same species may have both luminous and (95) nonluminous members, and the nonluminous ones appear just as viable and vigorous as their glowing counterparts. For instance, while many of the small marine organisms known as dinoflagel-(100) lates are luminous, many are not. Yet, on closer inspection, we find that the nonluminous dinoflagellates may benefit from the diversionary flashing tactics of the luminous ones. When the sea is (105) disturbed and light flashes create phosphorescence, the species which flash may provide enough light to serve the entire population. Thus, selection pressure for the development or mainte-(110) nance of luminescence in additional species is not great if light generated by a part of the population serves the entire community.

There are instances in which bioluminescence seems truly purposeless. What (115) does one make of a creature, such as a newly discovered species of a tomopterid worm, that emits light for no apparent purpose? This agile swimmer with a (120) multitude of paired legs spews a bright yellow bioluminescent fluid from each of its leg pores. While other types of spewers use this strategy to create a visual distraction, this worm's display (125) remains enigmatic, particularly since the light produced is yellow, while most midwater animals have eyes that are

sensitive only to blue-green. Perhaps some animal species are simply exploiting
(130) their capacity for flamboyance, in the same way that some humans bring a distinctively colorful flair to whatever they do.

31. The author's description of the angler fish in the third paragraph (lines 27–44) most strongly supports the assertion that the angler fish uses bioluminescence:

- **A.** to illuminate its prey.
- **B.** as a means of deterring predators.
- **C.** as a way to attract prey.
- **D.** to blend in with the bright waters near the surface.

32. It can be inferred from the passage that the "burglar alarm effect" (lines 63–64) is an example of:

- **F.** an intraspecific communication facilitator.
- **G.** bioluminescence as a nonessential phenomenon.
- **H.** interspecific use of bioluminescence by predators.
- **J.** luminescence as a defensive tool in interspecific relations.

33. The passage supports all the following statements EXCEPT:

- **A.** most midwater species are sensitive to yellow light.
- **B.** the tomopterid worm is not the oldest known bioluminescent species.
- **C.** strains of the same species can have both nonluminous and luminous members.
- **D.** bioluminescence provides help in ensuring survival of certain species.

34. Based on the information in the seventh paragraph, which of the following would be the best example of "selection pressure" (lines 108–109)?

- **F.** The development of acute eyesight to aid a marine animal in locating its prey in dark or murky waters
- **G.** The survival of an aggressive species of predator at the demise of its less aggressive competitors
- **H.** The habit of one species of fish to scavenge the remains of prey hunted by another species of fish rather than hunt for itself
- **J.** The tendency for a physical characteristic that is attractive to potential mates to become increasingly common among an animal population

35. The author mentions the tomopterid worm most likely in order to:

- **A.** underscore that bioluminescence serves no useful purpose for animals dwelling near the ocean floor.
- **B.** support the argument that bioluminescence is useful primarily in communication among the related species.
- **C.** illustrate the importance of bioluminescence in all midwater inhabitants regardless of their locomotive abilities.
- **D.** illustrate that some examples of bioluminescence in marine organisms cannot be classified according to the known functions of bioluminescence.

36. As it is used in the passage, the word *elude* (line 45) most nearly means:

- **F.** attract.
- **G.** illuminate.
- **H.** challenge.
- **J.** escape.

37. The squid's use of countershading, as it is described in the fourth paragraph (lines 45–59), is most analogous to:

- **A.** a solar eclipse, in which the Earth's moon comes between Earth and the Sun, thereby hiding the Sun from view on Earth.
- **B.** a portrait photographer's use of low-angle lighting to hide the cavernous shadows in a subject's eye sockets.
- **C.** a chameleon's ability to change the pattern and color of its skin to blend in with its immediate environment.
- **D.** an artist's use of contrasting shades to create the illusion that one object in a painting is closer to the viewer than another.

38. Among the following, the author of the passage would most likely agree that bioluminescence is:

- **F.** more common among marine animals than among marine plants.
- **G.** less practical than it is ornamental.
- **H.** most often a nonessential characteristic rather than an essential one.
- **J.** used more commonly for predation than for communication.

39. Which of the following statements, if true, would most seriously weaken the author's claim in the final paragraph that bioluminescence sometimes appears to serve no useful purpose?

- **A.** Male tomopterid worms are sensitive to yellow light, whereas female tomopterid worms are not.
- **B.** Some dinoflagellates can detect countershading, whereas other cannot.
- **C.** The legs of tomopterid worms serve no function other than to emit bioluminescent fluid.
- **D.** Many bioluminescent marine animals are completely blind.

40. The author's primary purpose in the passage is to:

- **F.** provide examples showing that, for some species of marine animals, bioluminescence is essential for survival.
- **G.** examine the manifestations and uses of bioluminescence, especially among inhabitants of ocean midwaters.
- **H.** describe how some marine animals use bioluminescence for the purpose of intraspecific communication.
- **J.** explore the various nonessential purposes that bioluminescence in marine life serves.

STOP

Science Reasoning

40 Questions ■ Time—35 Minutes

Directions: This test consists of seven passages, each followed by several questions. Read each passage and select the best answer for each question following the passage. Then, on your answer sheet, mark the oval corresponding to the best answer. You may NOT use a calculator on this test.

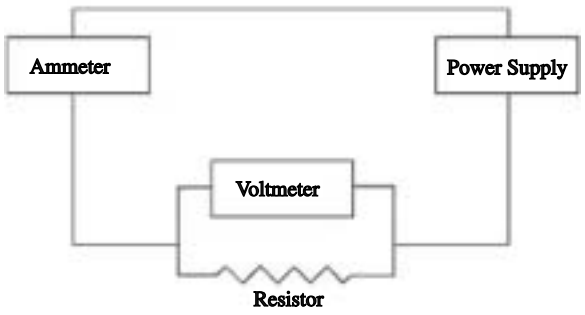
Passage I

As power is supplied to a circuit, current flows through the circuit. An *ammeter* is the device used to measure the current in milliamps (mA). The *voltage* responsible for the current can be measured by a voltmeter and is measured in volts. When a *resistor* is placed in a circuit, it dampens the current flowing through a circuit at a given voltage.

If there is a linear relationship between current and voltage when a resistor is placed in the circuit, the resistor is considered an *ohmic device*. Some resistors are sensitive to small external temperature changes and will show a change in resistance as a result of these temperature changes. These resistors are called *thermistors*. The change in resistance exhibited by a thermistor can be detected by a change in the observed current at a given voltage.

The following procedure was performed to investigate whether different resistors acted as ohmic devices in a circuit. The circuit was constructed as shown in Figure 1.

Figure 1



After each resistor was connected to the circuit, the resistor was submerged in water to detect any changes in temperature as well as its sensitivity to different beginning temperatures. The power source was turned on and the voltage of the power source and the resulting current were recorded. The voltage was changed several times and corresponding current was noted.

Table 1 on the following page summarizes the results when three different resistors were tested at two different temperatures. In all cases, no change in water temperature was observed after the resistor was submerged.

Table 1

	Resistor A		Resistor B		Resistor C	
	23°C	25°C	23°C	25°C	23°C	25°C
Voltage (V)	Current (mA)	Current (mA)	Current (mA)	Current (mA)	Current (mA)	Current (mA)
0.25	25	25	150	150	5	4.5
0.50	50	50	195	195	10	9.0
1.00	100	100	230	230	20	18.0
2.00	200	200	295	295	40	36.0
3.00	300	300	345	345	60	54.0
4.00	400	400	405	405	80	72.0
4.50	450	450	420	420	90	81.0
5.00	500	500	445	445	100	90.0

1. During the trials, when the resistor's temperature was 25°C and the current was measured at 100mA, what was the corresponding voltage?

A. 0.50 volts
B. 1.00 volt
C. 1.50 volts
D. 5.00 volts

2. When the voltage was 4.50 volts and the temperature was 23°C, what was the current when Resistor C was used?

F. 72mA
G. 81mA
H. 90mA
J. 420mA

3. Of the three resistors used in the trials, which would be considered an ohmic device but not a thermistor?

A. Resistor A only
B. Resistor B only
C. Resistor C only
D. Resistor A and Resistor B only

4. At a temperature of 25°C, what voltage would produce a current of 126mA if Resistor C is used?

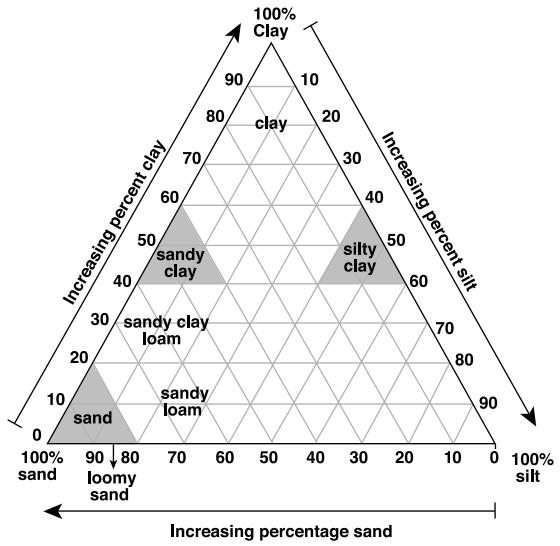
F. 5.50 volts
G. 6.00 volts
H. 7.00 volts
J. 8.00 volts

5. If the water temperature had increased after submerging resistor B, which of the following statements would have been most accurate?

A. The fact that the water temperature increased after submerging Resistor B shows that resistor B is a thermistor.
B. The fact that the water temperature increased after submerging Resistor B shows that resistor B is not an ohmic device.
C. Since the measured current was the same when the initial water temperature was 23°C as when it was 25°C, resistor B is an ohmic device.
D. Since the measured current was the same when the initial water temperature was 23°C as when it was 25°C, resistor B is not a thermistor.

Passage II

Soil is composed of sand, silt, and clay. The relative percentages of each particle type in soil are referred to as its texture. The diagram below is used to identify the soil types for various textures. Soils classified as loams contain organic matter.



Researchers wished to analyze soil samples from a certain forest and a nearby grassy field and to compare their soil composition and other properties.

Experiment 1

Soil samples were collected from the forest. The samples were dried and then weighed. The dried samples were then separated by particle size. The particles of each size were then weighed and the percentage of each size was calculated. The results are presented in Table 1:

Table 1

Sample No.	% Sand	% Silt	% Clay
Forest 1	45	5	50
Forest 2	20	60	20
Forest 3	43	28	15

Experiment 2

Soil samples were collected from the grassy field. Just as in Experiment 1, the samples were dried and weighed, and then separated by particle size. As in Experiment 1, the particles of each size were then weighed and the percentage of each size was calculated. The results are presented in Table 2:

Table 2

Sample No.	% Sand	% Silt	% Clay
Grass 1	12.5	54.5	33
Grass 2	57	37	6
Grass 3	82	7	11

6. Which of the following soil samples contains the greatest percentage of silt?

- **F.** Soil sample 2 from the grass
- **G.** Soil sample 3 from the grass
- **H.** Soil sample 2 from the forest
- **J.** Soil sample 3 from the forest

7. Which of the following is loam most likely to contain?

- **A.** Sand
- **B.** Clay
- **C.** Silt
- **D.** It cannot be determined from the information given.

8. Assuming all six soil samples contain the same amount of soil, which of the following statements is LEAST accurate?

- **F.** The soil samples from the forest contain about the same amount of silt as the soil samples from the grassy field.
- **G.** The soil samples from the forest contain a smaller amount of clay than the soil samples from the grassy field.
- **H.** The soil samples from the forest contain a smaller amount of sand than the soil samples from the grassy field.
- **J.** The soil samples from the forest contain a larger amount of loam than the soil samples from the grassy field.

9. In both experiments, soil particles in each sample were separated by size in order to:

- **A.** compare sand, silt, and clay to one another according to water content.
- **B.** determine the composition of the soil samples according to particle size.
- **C.** separate forest soil samples with grassy fields samples.
- **D.** compare sand, silt, and clay to one another according to weight.

10. Assume that, in a third experiment, a seventh soil sample is taken from another area, then dried and separated using the same procedure as for the other six samples. If measurements show that the sample contains more silt than either sand or clay, then the sample is probably most similar in texture to either:

- **F.** sample 1 from the forest or sample 3 from the grassy field.
- **G.** sample 1 from the forest or sample 3 from the forest.
- **H.** sample 1 from the grassy filed or sample 3 from the grassy field.
- **J.** sample 2 from the forest or sample 1 from the grassy field.

11. The researchers wished to compare the six soil samples collected during experiments 1 and 2 according to permeability (ability of water to pass through them). A portion of each sample was placed in a separate cup with a filter bottom, and then the same amount of water was added to each cup. After one minute, the amount of water passing through each filter was measured. In order to draw any reliable conclusions about the permeability of the six original samples, all of the following conditions are necessary EXCEPT:

- **A.** one minute is sufficient time for some amount of water to escape at least some of the cups.
- **B.** the same amount of soil was added to all six cups.
- **C.** in each cup, the proportions of sand, silt, and clay were the same as in the original sample.
- **D.** the filters did not allow soil particles to escape through the bottoms of the cups.

Passage III

Airplane wings must be designed *aerodynamically* (with consideration to the airflow over the body of the plane) to ensure efficient flight. Aerodynamic design considers *lift* and *drag*.

Lift is the force acting upwards on the plane. It is generated because the top of a wing is curved, while the bottom is flat. The air moving over the top of the wings must move faster than the air moving over the bottom. This results in a lower pressure area above the wing.

Drag is the air resistance generated by the plane. This is a force acting in opposition to the plane's forward movement. The most efficient planes are those with the highest lift-to-drag ratio.

Researchers testing new wing designs conducted a series of experiments to measure their efficiency.

Experiment 1

Researchers tested aircraft with four wing designs (see the following figure) in a *wind tunnel* (a tunnel in which air is blown over a craft to simulate flight conditions). This test simulated flight at 400 mph. The lift and drag measured for each wing shape are recorded in Table 1.

Figure 1

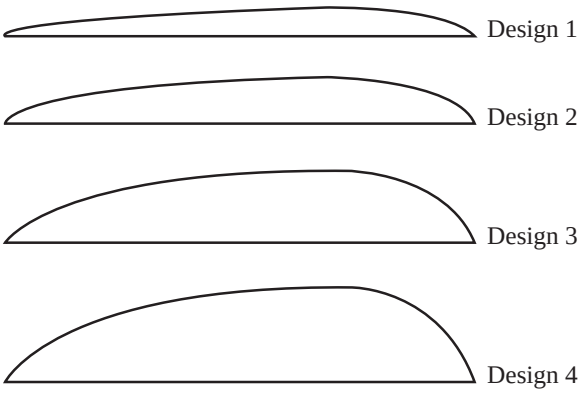


Table 1

Wing Design	Lift (neutrons)	Drag (neutrons)	Efficiency
1	3	.15	20:1
2	8	.2	40:1
3	10	1	10:1
4	18	2	9:1

Experiment 2

Aircraft with the four wing types depicted in figure 1 were tested under similar flight conditions to gauge fuel consumption. After reaching cruising altitude, the planes maintained a speed of 400 mph. The results appear in Table 2.

Table 2

Wing	Fuel consumption (gallons/hr)
1	40
2	20
3	80
4	88

Experiment 3

Lift, drag, and efficiency are dependent on airspeed. The researchers tested wing designs 1 and 2 at different speeds. Efficiency (lift-to-drag ratio) was recorded in Table 3.

Table 3

Airspeed (mph)	Design 1 (Efficiency)	Design 2 (Efficiency)
200	22:1	43:1
300	21:1	42:1
400	20:1	40:1
500	18:1	12:1
600	10:1	8:1

12. The most efficient wing tested in Experiment 1 was:

- **F.** design 1.
- **G.** design 2.
- **H.** design 3.
- **J.** design 4.

13. A passenger plane is able to carry a fixed weight, including passengers and fuel. Which wing design would be best for such a plane?

- **A.** Design 1
- **B.** Design 2
- **C.** Design 3
- **D.** Design 4

14. In cold, damp weather, the buildup of ice on airplane wings can pose significant aerodynamic problems. Which of the following effects would you expect?

- **F.** As ice builds up on the top of the wing, drag increases.
- **G.** As ice builds up on the top of the wing, lift increases.
- **H.** As ice builds up on bottom of the wing, lift decreases.
- **J.** All of the above

15. Which of the following test pairs reflects consistent experimental data?

- **A.** Experiment 1, wing design 2; Experiment 2, airspeed 200
- **B.** Experiment 1, wing design 1; Experiment 2, wing design 2
- **C.** Experiment 1, wing design 3; Experiment 3, airspeed 400
- **D.** Experiment 1, wing design 1; Experiment 3, airspeed 400

16. Which of the following statements about airspeed is supported by the data in Experiment 3?

- **F.** As airspeed increases, the lift-to-drag ratio increases.
- **G.** As airspeed increases, lift and drag increase at about the same rate.
- **H.** As airspeed increases, drag increases faster than lift.
- **J.** As airspeed increases, lift increases faster than drag.

17. New fighter jets are being designed so that the wing is modifiable, depending on the speed at which the plane is going. Which of the following would be a logical adjustment of the wing for such jets?

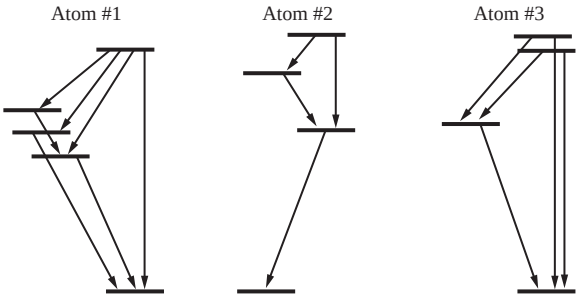
- **A.** At speeds above 500 mph, the top of the wing would become flatter.
- **B.** At speeds above 500 mph, the top of the wing would become more curved.
- **C.** At speeds above 500 mph, the bottom of the wing would become curved.
- **D.** None of the above

Passage IV

Interstellar objects (objects among the stars) in outer galaxies are often investigated using a method known as spectroscopy. *Spectroscopy* is a method of determining the atomic or molecular makeup of something by observing the object's *spectral lines.* Atoms and molecules have fixed energy levels. When an electron in an atom moves from one of its possible energy states to another, the atom releases light. This light has an energy equal to the difference in the two energy levels through which the electron moved. These energy transitions are observed as a sequence of spectral lines. Spectral lines that are close together indicate transitions in which the change in energy levels is similar.

Figure 1, below, depicts three hypothetical atoms. Energy levels are represented as horizontal segments. The distance between the segments is representative of the energy difference between the various levels. All possible transitions between energy levels are indicated by arrows.

Figure 1



Scientists can observe the spectral lines of atoms that are dominant in far-away galaxies. Due to the speed at which these galaxies are traveling, these lines are shifted, but their pattern remains the same. This allows researchers to use the spectral pattern to determine which atoms they are seeing. Table 1 below shows spectroscopic measurements made by researchers trying to determine the atomic makeup of a particular far-away galaxy. Light energy is not measured directly, but rather is determined from measuring the frequency of light, which is proportional to the energy.

Table 1

Frequencies Measured
868440
880570
879910
856390

18. For each of three hypothetical atoms (Atom 1, Atom 2, and Atom 3), Figure 1 depicts the:

- **F.** number of electrons and the amount of energy the atom contains.
- **G.** distance an electron travels from one part of the atom to another.
- **H.** energy released by the atom as an electron as it moves from one energy state to another.
- **J.** frequency with which the atom's electrons move from one energy state to another.

19. In which of the three hypothetical atoms depicted in Figure 1 does the energy of the light released by the atom vary the least?

- **A.** Atom 1
- **B.** Atom 2
- **C.** Atom 3
- **D.** It is impossible to tell.

20. Scientists observing an actual atom similar to hypothetical Atom 1 in the figure might observe:

- **F.** three spectral lines close together and two other spectral lines close together.
- **G.** light blinking at six different frequencies.
- **H.** a much brighter light emanating from one electron than from any other.
- **J.** four distinct spectral lines emanating from six different electrons.

21. Based on the spectroscopic measurements shown in Table 1 on page 50, which of the atoms in Figure 1 on page 50 (Atom 1, Atom 2, or Atom 3) is most similar to the one the scientists were observing, and why?

- **A.** Atom 2, because it contains four different energy levels.
- **B.** Atom 3, because it contains four different energy levels.
- **C.** Atom 1, because the frequencies listed in Table 1 on page 50 indicate a high level of atomic activity.
- **D.** Atom 3, because there is a comparatively small difference between exactly two of the four frequencies listed in Table 1 on page 50.

22. The laws of atomic physics prohibit electron movements between certain energy states. In atomic physics, these prohibitions are called "forbidden transitions." Based on Figure 1 on page 50, which of the following is most accurate?

- **F.** Atom 2 has the same number of forbidden transitions as Atom 1.
- **G.** Atom 2 has more forbidden transitions than Atom 3.
- **H.** Atom 3 has the same number of forbidden transitions as Atom 1.
- **J.** Atom 1 has fewer forbidden transitions than Atom 2.

Passage V

Tree age is important to researchers for understanding typical life-cycles in the forest and developing sustainable forestry practices. Counting tree rings is the method that is usually used to determine the age of trees, but in tropical rain forests, such as the Amazon, tree rings may be irregular (not annual) or nonexistent.

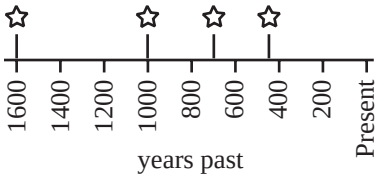
Carbon-14 dating is another method of determining tree age. Trees take carbon dioxide, which contains some of the radioactive element carbon-14, into their tissues at a known rate. By

Table 1

Tree No.	Tree Species	Tree Diameter (cm)	Tree Age (Years)	Calculated Average Growth Rate (cm/yr)
1	Cariniana micrantha	140	200	0.7
2	Cariniana micrantha	100	400	0.25
3	Cariniana micrantha	140	1,400	0.1
4	Hymenolobium species	180	300	0.6
5	Hymenolobium species	90	900	0.1
6	Bagassa guianansis	120	400	0.3
7	Bagassa guianansis	150	300	0.5
8	Caryocar glabrum	130	200	0.65
9	Caryocar vilosum	120	200	0.6
10	Iryanthera grandis	160	800	0.2
11	Dipteryx odorata	120	1,200	0.1
12	Sclerolobium species	80	200	0.4

measuring the levels of carbon-14 in a plant, scientists can determine its age. Table 1 on page 51 lists the age and other data for 12 trees that have emerged from the canopy in a small Amazon forest plot. The age of the trees was determined by carbon-14 dating.

Historical patterns of forest disturbance are also important to biologists for determining the extent to which the forest is affected and the forest's pattern of recovery. The following figure shows the catastrophic events that are known to have occurred in the area where the trees in Table 1 on page 51 were growing.



Legend: ☆ = catastrophic event

23. Which of the following statements about the trees listed in Table 1 on page 51 is LEAST accurate?

- **A.** The caryocar glabrum specimen is younger than the bagassa guianansis specimens.
- **B.** The cariniana micrantha specimens are larger in diameter than the sclerolobium specimen.
- **C.** The bagassa guianansis specimens have a higher current growth rate than the dipteryx odorata specimen.
- **D.** The iryanthera grandis specimen is older than the hymenolobium specimens.

24. Based on the data and other information given, which of the following is the most accurate way of confirming the hypothesis that one tree is older than another tree of the same species located just a few feet away in a tropical rain forest?

- **F.** Compare the number of rings in the two trees.
- **G.** Compare carbon-14 samples from the two trees.
- **H.** Compare the height of the two trees.
- **J.** Compare the diameters of the two trees.

25. Which of the following general relationships involving trees in tropical rain forests emerges from Table 1 on page 51?

- **A.** An inverse relationship between a tree's growth rate and its age
- **B.** An inverse relationship between the number of trees of a species and the species' general growth rate
- **C.** A direct relationship between a tree's growth rate and its age
- **D.** A direct relationship between a tree's age and its diameter

26. Outside of tropical rain forests, trees almost always increase in diameter with age. Looking just at the species named in each answer choice below, a researcher who has never observed tropical rain forests but knows the general relationship between tree diameter and age might reasonably conclude that it is possible to:

- **F.** compare the ages of different specimens of bagassa guianansis based solely on their diameters.
- **G.** compare the age of a sclerolobium to the age of a dipteryx odorata based solely on their diameters.
- **H.** compare the ages of different hymenolobium specimens based solely on their diameters.
- **J.** compare the age of a dipteryx odorata to the age of an iryanthera grandis based solely on their diameters.

27. Which of the following conclusions is best supported by the data?

- **A.** Three of the trees survived at least three catastrophic events.
- **B.** More than half the trees survived the most recent catastrophic event.
- **C.** Four of the trees survived at least two catastrophic events.
- **D.** One of the trees survived four catastrophic events.

28. Assume a researcher concludes, based on Table 1 on page 51 and the timeline figure on page 52, that dipteryx odorata is better able to survive catastrophic events than cariniana micrantha. Which of the following would be the most effective challenge to the researcher's conclusion?

- **F.** Two of the specimens of cariniana micrantha are larger in diameter than the dipteryx odorata specimen.
- **G.** The growth rate of the dipteryx odorata specimen is greater than two of the three specimens of cariniana micrantha.
- **H.** Only one of the twelve specimens is a dipteryx odorata, while three are of cariniana micrantha species.
- **J.** One of the specimens of cariniana micrantha is older than the dipteryx odorata specimen.

Passage VI

Although astronomers have a general outline for the steps that lead up to the formation of the wide-ranging interplanetary bodies called *comets*, there remain many questions as to where and exactly how comets were formed. The major points of dispute involve the location of their formation and the processes by which the comets were drawn into the Oort Cloud becoming permanent members of our Solar System. Three astronomers describe their views on this process.

Astronomer 1

The flattened, rotating disk of the nebula* out of which our Sun and its companion planets were formed is the ideal place for comets to have been born. The long, slow collapse of a nebula that evolved into a planetary system included the type of compression that would facilitate the accretion of the key specks of

*A nebula is a vast cloud of interstellar gas and dust.

matter into comet pellets. At a certain concentration level, these pellets began to clump into cometesimals and later aggregated into larger bodies. When our solar system was formed, the bodies that formed in the outskirts became the population of comets known as the Oort Cloud. Those comets that formed among the planets likely collided with the giant members of the Sun's family, coalescing into them. There is sufficient evidence of significant disturbance among the outer giant planets and their companion satellites in the early solar system to support this theory.

Astronomer 2

We may reasonably suspect that the nebula out of which our Sun formed was at least twice the mass of the Sun at its current stage. We believe that the processes that formed the inner solar system worked rapidly and were completed within 100,000 years. The remaining, less thoroughly coalesced matter was blown into the outer regions of the infant solar system. The larger masses eventually became the four outer gas giants: Jupiter, Saturn, Uranus, and Neptune. The smaller masses were thrown much farther, forming the Oort Cloud. Here, so distant from the gravitational influence of their parent sun, they were much more subject to the random forces of other nearby stars. Some of them are pushed in towards us, making their periodic and sometimes spectacular visits; others are pushed out to wander unseen in the vast galaxy.

Astronomer 3

The interstellar clouds out of which stars are formed are more vast, cold, and formless than can easily be imagined. In the absence of evidence that all the members of the solar system arose out of the same nebula, it is difficult to explain the birth of the wandering comets. The most likely scenario based on the actual evidence available is that icy grains of matter in these vast gas-molecular clouds slowly grew by aggregation as they wandered in cold, dark space. Eventually, the masses would grow large enough to be deemed cometary. When the Sun compressed and ignited, it possessed enough gravity to capture a large number of these cometary masses, forming a captive population of comets now orbiting far beyond the realm of the other solar companions.

29. Astronomer 1 and Astronomer 3 would both agree with all of the following statements EXCEPT:

- **A.** comets are formed by a process by which they slowly accumulate mass and volume.
- **B.** our solar system was formed as a result of a collapsing nebula.
- **C.** the comets in our solar system were formed in the nebula that became our solar system.
- **D.** some comets collided with newly formed planets during the formation of our solar system.

30. Which of the following is a claim that Astronomer 2 would make and with which both Astronomer 1 and Astronomer 3 would probably disagree?

- **F.** Our solar system was formed by a process of expansion away from a central core.
- **G.** Gravitation forces played a minor role in determining the eventual location and paths of comets in our solar system.
- **H.** Some comets collided with and, as a result, became part of our solar system's larger planets.
- **J.** The formation of our solar system's outer regions took longer than the formation of its inner regions.

31. Astronomer 2 would probably agree with all of the following statements EXCEPT:

- **A.** our inner solar system was formed earlier than our outer solar system.
- **B.** the Oort Cloud was formed by particles arriving from outside the nebula that became our solar system.
- **C.** the planets in our solar system all arose out of the same nebula.
- **D.** the planets in our solar system were all part of a single mass at one time.

32. With which of the following statements would Astronomer 1 most likely agree?

- **F.** The comets in our solar system were formed in both its inner and outer regions.
- **G.** The time needed to complete the formation of our outer solar system was greater than for our inner solar system.
- **H.** Comets that pass near the Earth were not originally part of the nebula out of which our solar system arose.
- **J.** During the formation of our solar system, collisions between comets and the smaller planets close to the Sun were not a common occurrence.

33. The theory of Astronomer 3 allows for the possibility that:

- **A.** the formation of comets occurred inside the nebula that became our solar system.
- **B.** the Oort Cloud was formed earlier than our solar system's sun.
- **C.** some comets coalesced with planets during the formation of our solar system.
- **D.** some comets that strike the Earth were originally part of the Oort Cloud.

34. The fact that the four planets nearest to the Sun are much smaller than our solar system's two largest planets lends:

- **F.** equal support to Astronomer 1's theory and Astronomer 3's theory but less support to Astronomer 2's theory.
- **G.** greater support to Astronomer 3's theory than to either Astronomer 1's theory or Astronomer 2's theory.
- **H.** greater support to Astronomer 2's theory than to either Astronomer 1's theory or Astronomer 3's theory.
- **J.** equal support to Astronomer 2's theory and Astronomer 1's theory but less support to Astronomer 3's theory.

Passage VII

Environmental levels of the organic volatile chemical benzene are of concern to public health officials because studies have shown that continual exposure to high concentrations of this compound can cause leukemia. Organic volatile chemicals are carbon-containing compounds that are easily vaporized and therefore are present in the air. Experiments to test for the presence of such chemicals were devised.

Experiment 1

Researchers outfitted individuals in urban, suburban, and rural areas with monitoring instruments that they could wear throughout the day. These instruments recorded the concentrations of benzene they were exposed to as they went about their normal activities. Other monitoring devices were used to record the benzene output of various known sources in the participants' environment. The average percentage of total benzene that participants were exposed to from various sources as well as

the average percentage of total output from these sources are given in Table 1.

Table 1

Sources	% of Total Benzene Emissions	% of Total Benzene Exposure
Automobiles	80%	20%
Industry	15%	4%
Household sources (e.g., stored paints and gasoline)	4.5%	35%
Cigarettes	0.5%	41%

Experiment 2

The researchers decided to look at whether other volatile organic compounds were found in greater concentrations indoors or outdoors. Residents from two areas wore monitoring devices that recorded the levels of a number of volatile organic compounds that they were exposed to during outdoor and indoor activities for several days. The first area was a highly industrial New Jersey city and the other was a rural township in Maine. The average exposure levels of residents in these areas are listed in Table 2.

Table 2

	NJ Industrial ($\mu g/m^3$)		Maine Rural Township ($\mu g/m^3$)	
Volatile Chemical	Indoor	Outdoor	Indoor	Outdoor
Trichloroethane	21	4	14	3
Tetrachloroethylene	9	3	8	1
Chloroform	5	0.2	2	0.1
O-oxylene	5	3	3	2
Styrene	5	0.5	1	0.2

Experiment 3

Fine particles in the air, particularly breathable particles (those that are 10 microns or smaller and are able to penetrate into the lungs), are another environmental concern. Large population studies have suggested that elevated outdoor concentrations of fine particles are associated with premature death. Most fine particles form through processes of combustion, such as cooking, burning candles, smoking, or burning firewood.

Researchers wanted to see what the total levels of such particles were indoors and outdoors and how these levels compared with an individual's exposure levels. Monitors that recorded levels of breathable particles were put inside and outside the homes of one individual from both of the communities in Experiment 2. These individuals were also asked to wear monitoring devices for one day and one night. The results from this experiment are shown in Table 3.

Table 3

	Day			Night		
	Personal Exposure $\mu g/m^3$	Indoor Levels $\mu g/m^3$	Outdoor Levels $\mu g/m^3$	Personal Exposure $\mu g/m^3$	Indoor Exposure $\mu g/m^3$	Outdoor Exposure $\mu g/m^3$
NJ Indust. City	152	98	100	75	65	95
Maine Rural Township	149	95	93	73	72	90

35. Experiment 1 was designed to accomplish all of the following EXCEPT:

- **A.** compare benzene emissions from urban sources with benzene emissions from suburban and rural sources.
- **B.** compare sources of benzene emission with levels of benzene exposure.
- **C.** compare benzene emissions from automobiles with benzene emissions from other sources.
- **D.** determine which aspects of people's daily routines exposes them to high levels of benzene.

36. Based on Experiment 1, which of the following two sources, considered together, expose an average individual to the greatest amount of benzene?

- **F.** Automobiles and industry
- **G.** Household sources and automobiles
- **H.** Industry and household sources
- **J.** Cigarettes and automobiles

37. In Experiment 2, with respect to which of the following compounds was the outdoor exposure level lowest overall?

- **A.** O-oxylene
- **B.** Chloroform
- **C.** Styrene
- **D.** Trichloroethane

38. Based on the results of Experiment 3, which of the following conclusions is most reasonable?

- **F.** Indoor levels of combustion are similar to outdoor levels of combustion.
- **G.** Nighttime levels of combustion are similar to daytime levels of combustion.
- **H.** Combustion levels in industrial areas are similar to those in rural areas.
- **J.** Daytime levels of personal exposure to combustion particles are similar to nighttime levels.

39. Which of the following best reconciles the results of Experiment 2 and the results of Experiment 3?

- **A.** The compounds whose levels were measured in Experiment 2 become airborne as particles greater than 10 microns in size.
- **B.** Combustion is only one of many human-generated activities that contribute to the emission of volatile organic compounds into the air.
- **C.** The individuals whose activities were monitored in Experiment 3 were not the same individuals who were monitored in Experiment 2.
- **D.** Industrial areas experience higher emission levels of volatile organic compounds than rural areas.

40. In Experiment 3, if one of the study subject's nighttime indoor exposure level was 45 micrograms/meter^3, which of the following would most likely be the level of that subject's nighttime outdoor exposure?

- **F.** 105 micrograms/meter^3
- **G.** 68 micrograms/meter^3
- **H.** 46 micrograms/meter^3
- **J.** 29 micrograms/meter^3

STOP

Answers and Explanations

English

1. D In referring to the trip as *One of my most memorable trips*, the writer has already told us that it was a trip she made; the underlined portion is redundant and can simply be omitted. Choices (B) and (C) are each redundant as well.

2. G In the original sentence, the first phrase (*Although a chilly, late autumn day*) appears to modify, or describe, *the garden*, which makes no sense, of course. Choice (G) clears up the confusion. Although choice (H) accomplishes the same thing, the result is a wordy and repetitive phrase (*the day was a . . . day . . .).* Choice (J) creates a comma splice—two independent clauses connected only by a comma.

3. C The sentence beginning with *Gardeners* explains why the garden was still in bloom in late autumn. The original version provides no link between this sentence and the preceding one. Choice (C) remedies the problem, by providing a connection (*because*) that tells the reader that an explanation is just ahead.

4. F The underlined portion correctly uses the subject-case pronoun *I*. Although choice (G) also uses the correct pronoun, it is more idiomatic to refer to *my companion and I* than to *I and my companion*.

5. B The clause that follows the comma is vague. Choice (C) makes clear that it is the trellis that frames the house.

6. F The writer seeks to emphasize how wonderful Monet's residence is. The underlined portion, although unnecessary, helps provide this emphasis and fits the admiring and enthusiastic tone the writer has adopted for the essay. Choice (G) suggests movement and is the wrong idiom here. Choice (H) is unnecessarily wordy; the original version supplies more rhetorical punch.

7. B Sentence 2 states a general idea, which the other two sentences support with detail. Thus, sentence 2 should be either the first or the last sentence of the paragraph. Notice that sentence 1 begins with *A trellis*, which suggests that the trellis is being mentioned for the first time. Accordingly, sentence 1 should immediately precede sentence 3, which provides additional information about the trellis.

8. F The writer uses the reflexive pronoun *itself* appropriately and effectively here to emphasize that it is the house, and not some other part of the property, that is being discussed here.

9. D In this sentence, the writer misuses the word *through*. In order to convey the idea that the art is displayed in all the different areas of the house, the writer should use the word *throughout* instead.

10. F In the preceding sentence, the writer points out one way that the house reflects Monet's interest in Japanese art. In the sentence at hand, the writer points out another such way. Using the word *further* is an effective way to indicate that additional evidence is being provided. Choice (H) would be viable if *also* and *is* were reversed (*is also reflected*); as it stands, however, choice (H) obscures the meaning of the sentence.

11. B As the sentence stands, two independent clauses are improperly connected with only a comma. Choice (B) transforms the first clause into a dependent clause with the use of a concise phrase.

12. J The paragraph's first sentence tells us that this paragraph will explain the amazing features of the water garden. The fact that Monet's property is located in the village is not relevant to this discussion. What's more, the sentence can be omitted without adversely affecting the flow of information in the paragraph.

13. B From the preceding sentences, the writer suddenly shifts tense to the present (all that *is* left), then back to the past (*entwined*). All of the writer's observations occurred in the past, and so the shift to the present tense is unwarranted. Choice (B) corrects the problem.

14. J Sentences 4 and 5 both talk about what autumn brings to the wisteria that entwines the footbridge railings. The best place to contrast these images to what the observer might see during the summer is after sentence 5.

15. C The essay's other paragraphs all discuss Monet's garden. By turning to a brief discussion of Monet's house, the writer departs from the central topic.

16. J The original sentence contains a subject-verb agreement error. The sentence's subject, *number of factors*, is considered plural. Accordingly, *account* should be used instead of *accounts*. Choice (J) corrects this error.

17. A A colon is appropriate here because it signals that what follows is a list that elucidates what has just been described (factors accounting for this interconnectedness).

18. H At the end of the first paragraph, the writer lists three factors in globalization. In the second paragraph, the writer discusses the first of the factors. The underlined sentence essentially repeats a substantial portion of the previous one. Choice (H) provides a more concise, less repetitive alternative. Not only does it tell the reader what to expect in the paragraph, it also provides a clue that subsequent paragraphs will take up the other two factors, each one in turn.

19. B In the original sentence, the word *which* is intended to modify *tariffs*, but its juxtaposition with *imports* creates confusion. Also, it is unclear as to what the pronoun *their* refers. Choice (B) is the only one that eliminates both sources of confusion.

20. J The transition from the second to the third sentence is stilted. Since their ideas are so closely related, an appropriate connector, such as the one choice (J) provides, should be used to link them together and to help get the point across.

21. C It is idiomatic to refer to companies as either having or maintaining *a presence* in a particular location.

22. G The phrase *This is true* is awkward. Choice (G) suggests a way to eliminate it and to enhance the flow of ideas: *In fact, many companies that Americans typically think of as U.S. in origin, from publishing companies to food manufacturers to music producers, are actually owned by corporations in other nations.*

23. D Notice that the preceding paragraph introduced the second of three factors with a sentence that begins: *Another factor . . . .* An effective way of reinforcing the structure and sequence of ideas in the essay is to begin the third paragraph (which deals with a third factor) using the same structure—which is exactly what choice (D) accomplishes.

24. J The underlined word refers to *the Japanese*, a plural noun. Thus, the plural possessive form *their* is correct here.

25. A The plural *businesses* is an appropriate reference to more than one business. Also, the phrase *such as* is idiomatic here. Choice (B) provides an acceptable alternative, but the punctuation is incorrect (*businesses—for example,* would have been correct).

26. G The paragraph's first sentence states the paragraph's topic. The proposed sentence provides an example of the flow of money from one nation to another, and is therefore a fitting addition to the paragraph. What's more, since only one of the two previous examples is current, another current example is especially useful to support the paragraph's main point.

27. A The underlined portion exhibits a parallel grammatical structure. The choice of phrases—"good thing" and "bad thing"—may not be ideal for this essay ("helpful" and "harmful" might arguably convey a more appropriate tone), but the choice is nevertheless acceptable.

28. G The clause immediately following the underlined portion is key here. Notice that both clauses are similar in structure—they're brief and to the point, employing simple present-tense verbs. This is an effective technique for giving two ideas equal rhetorical emphasis. The only problem with the underlined verb *decline* is that it does not agree in number with the singular subject *demand*. Choice (B) corrects this error and maintains a grammatical structure that parallels the structure of the clause that follows.

29. C The proper idiom is *based not on . . . but rather on . . . .* The underlined portion not only omits *rather* but also suffers from faulty parallelism. (The words *not* and *based* should be switched.) Choice (B) completely fails to make the intended point. Choice (D) fails to connect the two ideas; the result is rhetorically ineffective. Choice (C), the best of the four, provides an effective, idiomatic alternative and presents no parallelism problem.

30. H In the final paragraph, the writer first poses the question of whether globalization is good or bad for the world's people. The writer then provides evidence suggesting that, on balance, globalization has done more harm than good. Then, the writer remarks that, in the economist's ideal world, globalization is good. The writer should add a final sentence that counters the economist's viewpoint and provides a realistic answer to the question posed in the paragraph's first sentence. Choice (H) provides just such a sentence.

31. D Following the underlined portion, the writer employs the active voice and refers twice to *you*. But, the underlined portion employs the passive voice. Choice (D) provides for a consistent, active voice throughout. There's no need to refer to movies here; the context is clear enough from the preceding sentence.

32. H For clarity, a punctuation mark is needed between the words *life* and *like*. Also, the phrase *such as* is more appropriate than *like* here, since the writer is providing examples.

33. B Choice (B) provides a more concise, less repetitive alternative to the underlined phrase. The idea that these sights never existed in the past is implied in this phrase. Choices (C) and (D) are both grammatically correct, but they're wordy and awkward.

34. J The sentence is unrelated to any of the ideas in this paragraph or in the following two paragraphs. In fact, nowhere in the essay does the writer describe specific tricks and techniques that effects artists use. The best proposal is to simply omit the sentence.

35. C In the underlined sentence, the pronoun *they* is intended to refer to *special-effects techniques* (in the preceding sentence), but the reference is unclear. Choice (C) clears up the confusion by reconstructing the sentence; with *they* at the beginning, the reference is much clearer.

36. F The original version is idiomatic and gets the point across. Choice (H) is acceptable but unnecessarily wordy.

37. C As the underlined phrase is constructed, the gerund form *using* is not idiomatic. One solution is to replace it with the noun *use*. The word *the* is optional—it can either be kept or omitted. Choice (B) is clumsy, and choice (D) distorts the meaning of the original underlined portion. (*Clever* should refer to *use*, not to *special effects*.)

38. F The adjective *amazing* is intended to modify, or describe, the adjective *clever*. For this purpose, the suffix *-ly* is proper.

39. B With the phrase *the real magic lies in . . .* , the writer is trying to suggest that what follows is even more amazing than the impressive but "less magical" effects described in the previous paragraph. The transition word *However* helps to convey this idea.

40. H The underlined portion contains the possessive pronoun form of *they*, which makes no sense in context since the writer is not referring to something belonging to effects artists. The contraction *they're* (they are) should be used instead. Choice (H) provides a concise alternative that corrects the error and clearly conveys the intended idea.

41. B The subject of the sentence, *special effects*, is plural. Thus, in the underlined portion, the verb *are* is correct. However, the sentence would be clearer if *tools* were juxtaposed with the phrase that modifies it (*for communicating*). Choice (B) reconstructs the phrase in a way that accomplishes this goal. (The singular *tool* is idiomatic here, even though *special effects* is plural.)

42. G The use of *reason* and *why* together is redundant. The word *why* can simply be omitted.

43. C The verb form *give* agrees in number with the plural noun *ways*. In other words, "it" gives, but "they" give. Choices (A) and (D) wrongly suggest that there's only one way to give audiences the thrill described in the sentence. Choice (D) is also clumsy.

44. F Sentence 3 states a general idea that the other three sentences support with detail, so it makes sense to begin the paragraph with this sentence. Notice that sentence 4 begins with *Even in comedies*, which suggests that sentence 4 should follow sentences 2 and 3, both of which involve another movie genre.

45. D Paragraph 1 provides a fitting introduction to the subject of the essay, establishing its framework. In the first sentence of Paragraph 3, the writer refers to "all these examples." The only examples that make sense in context are the ones listed in Paragraph 1. Thus, Paragraph 3 should immediately follow Paragraph 1. Notice that Paragraph 2 states early that effects artists play a growing role in moviemaking. Also, notice that the remainder of Paragraph 2, along with Paragraphs 4 and 5, flesh out this idea with details. So, it makes sense that Paragraph 2 should come third, before Paragraphs 4 and 5. Paragraph 4, which provides apt concluding remarks for the essay, should come last—immediately after Paragraph 5.

46. G The underlined portion fails to make clear why France did not provide troops but did provide money. It also lacks coherence. (What is the point of the second sentence?) Choice (G) reorganizes the ideas into a construction that clearly indicates the purpose of France's monetary support.

47. D In Paragraph 1, the writer seeks to show how cooperation between France and the United States helped defeat the British. Choice (D) provides an image of the British soldiers being forced by the combined presence of French-American soldiers to surrender and leave. This is just the sort of image that reinforces the idea the writer wishes to convey.

48. G The phrase *and negotiate . . .* is not an independent clause and thus should not be preceded by a comma.

49. C The pronoun *they* is a so-called "dangling modifier"; that is, it has no antecedent. (Who are *they*? We're not told.) One solution to the problem is to use the passive voice so that the pronoun is not needed, as in choice (C).

50. J The sentence refers to the time at which the convention was convened. In context, the relative pronoun *When* makes the most sense.

51. A The singular pronoun *its* agrees with the singular antecedent *Convention* and is needed to make clear as to what *illustrious members* refers.

52. F The writer's point here is that it should surprise the reader how few people realize that Franklin played a key role in the Revolution. The adjective form with *-ly* is correctly used here to describe the adjective *few* and is more concise than the phrase in choice (C).

53. B Although the underlined portion is grammatically correct, it is repetitive. Choice (B) provides a more concise and rhetorically effective alternative.

54. G In the context of the entire sentence, the underlined portion leads the reader to believe that most people think of Franklin as someone overshadowed in history. However, the main thrust of the paragraph is that most people are actually unaware of the fact that he was overshadowed in history—because history has largely overlooked Franklin's political role. The alternative construction that choice (G) provides clears up the confusion.

55. C When the writer tells us in the previous paragraph that few people *realize* Franklin's role and tells us how people *think* of him, the author is speaking of people today (at the present time), not people of the past. In this context, the sentence at issue is clearly intended to refer to people today (not people of the past) who overlook Franklin's role in the Revolution. Also, the idea that the history books have overlooked this role suggests the use of the present-perfect tense—occurring in the past and up to (and including) the present. Accordingly, it is correct to use the present-perfect form *has been* rather than either the past-perfect form *had been* or the simple-present form *is*.

56. G In the sentence, the writer intends to cite Franklin's reputation as a scientist and as a philosopher—along with Franklin's wit and charm—to explain how he gained influence among the powers-that-be in Europe. But, only the first two items in the list should be parallel in construction, as choice (G) provides.

57. A It is idiomatic to refer to a person's location as *in* a particular country but *on* a particular continent.

58. J In the underlined portion, the antecedent of *its* is unclear. (Does the pronoun refer to France or to the United States?) Choice (J) clarifies the pronoun reference.

59. A The sentence helps explain why Franklin would have been surprised that history has overlooked his role in the American Revolution—the main point of the essay.

60. H Paragraph 3 provides a fitting introduction to the subject of the passage, establishing its framework and even its thesis. Thus, it should come first. For coherence, the writer should present the events of Franklin's political contributions in chronological order—from his initial efforts to position himself as an international diplomat (Paragraph 4), to his subsequent acts as minister to France (Paragraph 1), to his post-war involvement in the U.S. government until his death (Paragraph 2).

61. C The third problem listed in the sentence is not grammatically parallel to the first two. Reading the sentence as follows reveals the faulty parallelism: *People had no jobs, people had no food, and people were losing their shelter.* Choice (C) provides one solution to this problem.

62. J In the underlined portion, a comma improperly separates two independent clauses (each of which could stand on its own as a complete sentence). One solution is to add an appropriate connecting word immediately after the comma, such as *which*. Choice (J) provides another solution: Transform the second clause into a dependent one and omit the object *it*.

63. A Sentence 4 of Paragraph 1 is an effective way to introduce the three topics that the writer takes up in the next three paragraphs—one topic per paragraph. The sentence belongs exactly where is—at the end of Paragraph 1. (Notice that Paragraphs 2, 3, and 4 each begin similarly—a strong clue that the paragraph break between Paragraphs 1 and 2 is appropriate where it is, and it should be neither omitted nor moved.)

64. G The preceding sentence identified the three stages in sequence, so there's no need to immediately remind the reader that the first stage is the relief stage. Even aside from what the preceding sentence indicates, the underlined portion seems repetitive. It suffices to start the sentence with *During the relief stage*—as choice (G) suggests. (An equally effective starting clause would be *During the first stage*.)

65. C The underlined portion wrongly suggests that the CCC facilitated *un*employment, rather than employment. All that the writer needs to say here is that the Corps provided jobs, or employment—as choice (C) provides.

66. G The phrase *not only* should be paired with *but also*, and what follows one should be grammatically parallel to what follows the other. Choice (G) provides the complete correlative pair (*not only . . . but also*) and restructures the underlined phrase so that it parallels the preceding one.

67. D In sentence 3, the writer has already made the essential point made in sentence 5. Nothing would be lost by simply omitting sentence 5.

68. H A colon is inappropriate here because what follows it neither restates what precedes it nor provides a list. What follows the colon is a reason for the short-term relief mentioned before the colon. One way to correct the punctuation problem is to replace the colon with a semicolon, which is appropriately used to signal that an explanation or reason for what precedes it is just ahead.

69. D The underlined portion, together with the preceding portion of the sentence, tells us essentially that laws created laws—a nonsensical idea. What the laws created were a minimum wage and a maximum work week, which is just what choice (D) indicates.

70. H The pronoun *it* is intended to refer to *new federal laws*, but the reference is unclear. The best way to clear up the confusion is to replace the pronoun with the noun to which it refers.

71. C As it is constructed, the original sentence nonsensically suggests that the SSA might have also been created during another stage. Clearly, the writer's intent is to first point out that the SSA was created during the third stage, and then to list its main purposes. Choice (C) carries out the writer's intent effectively, by reconstructing the underlined portion and separating the two ideas with an appropriate mark.

72. H The relative pronoun *which* is used improperly here. Choice (H) solves the problem. Choice (G) is wrong because the form of the subject *employers* is not possessive (as in *employers' attempts*).

73. B The subject of the sentence is the singular *relief*, which calls for the singular verb form *was*.

74. G The sentence that choice (G) provides helps explain why providing relief under the New Deal was the responsible thing to do for the good of the nation.

75. A The phrase *attempt a better life* is idiomatic. (Either the singular *a better life* or the plural *better lives* would be acceptable.)

Math

1. D Given a total of 120 enrolled students, 36 of them must be seniors. To determine the percentage, divide 36 by 120, then move the decimal point two places to the right: $36 \div 120 = .3$, or 30%.

2. G The line segment connecting the two points $A(6,3)$ and $B(0,3)$ is horizontal because the y-coordinate is the same for both points. Thus, the distance between A and B is simply the difference of their x-coordinates: $6 - 0 = 6$.

3. A Raise both the coefficient -2 and variable x^2 to the power of 4. When raising an exponent to a power, multiply together the exponents:

$$(-2x^2)^4 = (-2)^4x^{(2)(4)} = 16x^8$$

4. H First, substitute 3 for A in the equation $AB = -9$: $3B = -9$, $B = -3$. Then, substitute -3 for B in the equation $BC = -6$: $-3C = -6$, $C = 2$.

5. E Substitute 5 for b in the equation, then solve for a:

$$\frac{a(5)}{10} + 5 = a - 2$$

$$\frac{a}{2} + 5 = a - 2$$

$$\frac{a}{2} - a = -2 - 5$$

$$-\frac{a}{2} = -7$$

$$a = 14$$

6. K Since the answer choices are expressed in decimal terms, rename all three terms in the question as decimals, then add:

$$\sqrt{.49} = .7$$

$$\frac{3}{4} = .75$$

$$80\% = .8$$

$$.7 + .75 + .8 = 2.25$$

7. B Letting w equal the rectangle's width, its length is $3w$ and its area is $(w)(3w) = 3w^2 = 12$. To find the rectangle's perimeter, first solve for w:

$$3w^2 = 12$$

$$w^2 = 4$$

$$w = 2$$

The perimeter is $2l + 2w = 6w + 2w = 8w = (8)(2) = 16$.

8. G Because the t-terms are the same ($.2t$), the quickest way to solve for s here is with the addition-subtraction method. Manipulate both equations so that corresponding terms "line up," then add the two equations:

$$\begin{array}{r} .2t + .6s = 2.2 \\ -.2t + .5s = 1.1 \\ \hline 1.1s = 3.3 \\ s = 3 \end{array}$$

9. B The amount of the decrease is \$4. The percent of the decrease is $\frac{4}{25}$, or $\frac{16}{100}$, or 16%.

10. F The amount invested at 5% is $(10{,}000 - x)$ dollars. Thus, the income from that amount is $.05(10{,}000 - x)$ dollars.

11. B Multiplying together any combination of the factors of p will result in a product that is also a factor of p. The only number among the choices listed that is not a product of any of these combinations is 36.

12. G $\angle 3$ corresponds to $\angle 4$, both of which are formed just by the same transversal of lines k and m. Thus, statement II is always true. However, $\angle 1$ and $\angle 2$ are not corresponding angles; $\angle 1$ is formed by both transversals, but angle two is formed just by one transversal. $\angle 5$ and $\angle 6$ are not corresponding angles; they are formed by different transversals. Thus, neither statement I nor statement III need be true.

13. C The relationship between p and q is $p = \sqrt[3]{q}$, or $p^3 = q$. The relationship between q and r is $q = \frac{1}{\sqrt{r}}$. Choice (C) expresses the relationship between q and both p and r in one equation.

14. K Increase the first coordinate (the x-value) in each pair by 3, and increase the second coordinate (the y-value) in each pair by 2. Choice (K) provides the correct translation.

15. E The line shows a negative y-intercept (the point where the line crosses the vertical axis) and a negative slope less than -1 (that is, slightly more horizontal than a 45° angle). In choice (E), $-\frac{2}{3}$ is the slope and -3 is the y-intercept. Thus, choice (E) matches the graph of the line.

16. J One way to solve this problem is to substitute each answer choice in turn into the given fraction. You can also solve the problem algebraically. Let $\frac{x}{2x}$ represent the original fraction. Add 4 to both the numerator and denominator, then cross-multiply to solve for x:

$$\frac{x+4}{2x+4} = \frac{5}{8}$$

$$8x + 32 = 10x + 20$$

$$12 = 2x$$

$$6 = x$$

The original denominator is $2x$, or 12.

17. A Apply the formula for determining a line's slope (m):

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6-4}{3-(-1)} = \frac{-10}{4} = -\frac{5}{2}$$

18. F You can answer this question without knowing the total number of legislators who voted, because the question involves ratios only. Think of the legislature as containing 8 voters divided into two parts: $\frac{5}{8} + \frac{3}{8} = \frac{8}{8}$. For every 5 votes in favor, 3 were cast against. Thus, 5 out of every 8 votes, or $\frac{5}{8}$, were cast in favor of the motion.

19. B Using the formula for a line's slope, $m = \frac{y_2 - y_1}{x_2 - x_1}$, formulate an equation in variables p and q for each of the two line segments. Given that the slope of a line segment with endpoints $(7,-2)$ and (p,q) is -1:

$$-1 = \frac{q - (-2)}{p - 7}$$

$$-1 = \frac{q + 2}{p - 7}$$

$$7 - p = q + 2$$

$$p = 5 - q$$

Given that the slope of a line segment with endpoints $(1,-4)$ and (p,q) is $\frac{1}{2}$:

$$\frac{1}{2} = \frac{q - (-4)}{p - 1}$$

$$\frac{1}{2} = \frac{q + 4}{p - 1}$$

$$p - 1 = 2q + 8$$

$$p = 2q + 9$$

With two equations in two variables (p and q), you can now solve for q. Using the substitution method:

$$p = 2q + 0$$

$$(5 - q) = 2q + 9$$

$$-3q = 4$$

$$q = -\frac{4}{3}$$

20. J The information in the question indicates the inequality $3p - 8 < 7$. Solve for p: $3p < 15$; $p < 5$. The graph in choice (J) indicates this inequality.

21. A The question asks essentially for the negative reciprocal of b in the standard form $ax^2 + bx + c = 0$. If the equation is to have one and only one root, the trinomial must be factorable into two identical binomials in which the first term is the square root of $4x^2$ and the second term is a negative-number square root of 1. You can rewrite the equation in factorable form as follows: $(2x - 1)(2x - 1) = 0$. In unfactored form, this equation is $4x^2 - 4x + 1 = 0$. Hence, $4 = \frac{1}{q}$, and $q = \frac{1}{4}$.

22. J The number of dollars increases proportionately with the number of pieces of paper. The question is essentially asking: "1 is to m as what is to p?" First, set up a proportion (equate two ratios, or fractions). Then convert either pieces of paper to reams (divide m by 500) or reams to pieces (multiply p by 500). (The second conversion method is used below.) Cross-multiply to solve for x:

$$\frac{1}{m} = \frac{x}{500p}$$

$$mx = 500p$$

$$x = \frac{500p}{m}$$

23. D Equate C's age eight years from now ($C + 8$) to twice B's age eight years from now ($B + 8$), and then solve for C:

$$C + 8 = 2(B + 8)$$

$$C = 2(B + 8) - 8$$

$$C = 2B + 16 - 8$$

$$C = 2B + 8$$

24. G Since $x^2 - y^2$ is the difference of two squares, $x^2 - y^2 = (x + y)(x - y) = 16$. Given $x + y = 2$, solve for x:

$$(x + y)(x - y) = 16$$

$$2(x - y) = 16$$

$$x - y = 8$$

$$x = 8 + y$$

To solve for y, you can substitute $(8 + y)$ for x in the equation $x + y = 2$:

$$x + y = 2$$

$$(8 + y) + y = 2$$

$$2y = -6$$

$$y = -3$$

25. E First, find the midpoint of the line segment, which is where it intersects its perpendicular bisector. The midpoint's x-coordinate is $\frac{4-3}{2} = \frac{1}{2}$, and its y-coordinate is $\frac{-2+5}{2} = \frac{3}{2}$. Next, determine the slope of the line segment: $\frac{5-(-2)}{-3-4} = \frac{7}{-7} = -1$. Since the slope of the line segment is -1, the slope of its perpendicular bisector is 1. Plug the (x,y) pair $\left(\frac{1}{2}, \frac{3}{2}\right)$ and slope (m) 1 into the standard form of the equation for a line ($y = mx + b$), then solve for b (the y-intercept):

$$\frac{3}{2} = (1)\left(\frac{1}{2}\right) + b$$

$$1 = b$$

You now know the equation of the line: $y = x + 1$.

26. H $3x$ is a multiple of 3; thus, adding 5 to that number yields a number that is not a multiple of 3. None of the other choices fit the bill. Choice (F) is incorrect because $x > 0$ and therefore must equal 3 or some multiple of 3. Choices (G), (J), and (K) are incorrect because any integer multiplied by 3 is a multiple of 3, and any multiple of 3 (such as 6 or 18) added to a multiple of 3 is also a multiple of 3.

27. D Letting $x =$ the length in question, by the Pythagoran theorem:

$x^2 + 7^2 = 13^2$; $x^2 = 169 - 49$; $x^2 = 120$; $x \approx 11$.

28. G The radius of a circle with circumference twice that of the semicircle shown in the figure would be 4 units, and the circle's circumference would be $2\pi r = 2\pi(4) = 8\pi$. Thus, the curved side of the region in the figure is half that circumference, or 4π. The height of the region is twice the radius of that circle, or 8. Thus, the total length of the straight sides of the region $= 10 + 8 + 10 = 28$. The total perimeter is $28 + 4\pi$.

29. E For each year, visually compare the difference in height between Country X's light bar and Country Y's dark bar. (For each year, the left-hand bars represent data for Country X, while the right-hand bars represent data for Country Y.) A quick inspection reveals that only for the year 1990 is Country Y's dark bar approximately twice the height of Country X's light bar. Although you don't need to determine dollar amounts, during 1990, Country Y's imports totaled about \$55 million, while Country X's exports totaled about \$28 million.

30. G The area of a circle $= \pi r^2$. Letting the radius of the smaller circle $= r$, the radius of the larger circle $= 2r$, and its area $\pi(2r)^2$, or $4\pi r^2$. The ratio of the smaller circle's area to the larger circle's area is $\pi r^2 : 4\pi r^2$, or 1:4.

31. D In each set are three distinct member pairs. Thus the probability of selecting any pair is one in three, or $\frac{1}{3}$. Accordingly, the probability of selecting fruit and salad from the appetizer menu along with squash and peas from the vegetable menu is $\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$.

32. K To determine the entry for row 1, column 2 of matrix PQ, multiply each term in P's column 2 by the only term in Q's row 1, then add the products:

$(2)(-3) + (4)(-3) = -6 + (-12) = -18.$

33. E Given $N = 2$, the 25th term of Set $R = 25N + 25 = 25(2) + 25 = 75$.

34. F You can eliminate answer choices (J) and (K) immediately, since common sense tells you that Cynthia's average rate is closer to 50 than to 60, and certainly not more than 60. Think of Cynthia's average rate as the average of eight equally weighted one-hour trips. Seven of those trips receive a weight of 50, and one of the trips receives a weight of 60. You can express this algebraically as follows:

$$\frac{7(50) + 60}{8} = \frac{350 + 60}{8} = \frac{410}{8} = 51.25$$

Cynthia's average rate during the entire trip was 51.25 mph.

35. E The question provides that $x + y < 0$. Accordingly, $-(x + y) > 0$. Distributing the minus sign to both x and y gives you the inequality $-x - y > 0$, which is the same as $-y - x > 0$.

36. F Isolate $\sqrt[3]{p + q}$ on one side of the equation, then "cube" both sides:

$$\sqrt[3]{p + q} \equiv -4$$

$$\left(\sqrt[3]{p + q}\right)^3 \equiv (-4)^3$$

$$p + q = -64$$

37. C P percent means $\frac{p}{100}$. Hence, $\frac{p}{100} \times 20 = Q$. To answer the question, solve for P:

$$\frac{p}{100} \times 20 = Q$$

$$\frac{P}{5} = Q$$

$$P = 5Q$$

38. J The function $\log_x 64 = 4$ is equivalent to $x^4 = 64$. Hence, $x = \sqrt[4]{64} = \pm 2$.

39. C Since the two areas both equal $L \times W$, the other (longer) corral must have a length of $\frac{3}{2}L$ and a width of $\frac{2}{3}W$. Accordingly, the perimeter of the longer corral $= (2)\left(\frac{3}{2}L\right) + 2\left(\frac{2}{3}W\right)$, or $3L + \frac{4}{3}W$.

40. H Any term to a negative power is the same as "the reciprocal of" the term, but raised to the *positive* power. In addition, a negative number raised to a power is *negative* if the exponent is *odd*, yet *positive* if the exponent is *even*:

$$-1^{(-3)} + [-1^{(-2)}] + [-1^2] + [-1^3] = \frac{1}{1} - \frac{1}{1} + 1 - 1 = 0$$

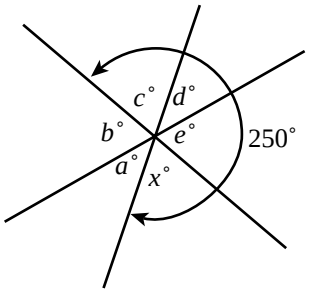
41. C The ellipse's center is at (p,q); hence, applying the standard form of the equation for an ellipse, in which the ellipse's center is at (h,k), $h = p$ and $k = q$. The length of the ellipse's x-axis is $-2p$, and the length of its y-axis is $2q$. Since $|p| < q$, the ellipse is vertically oriented. Accordingly, in the standard form of the equation for an ellipse, the larger denominator, in this case q^2, is under the variable y:

$$\frac{(x-p)^2}{p^2} + \frac{(y-q)^2}{q^2} = 1$$

42. K Letting x = the degree measure of the second-smallest angle, $x + 2x + 3x + 4x = 360$; $10x = 360$; $x = 36$. The largest angle ($2x°$) measures 72°. The sum of the measures of the two angles is 108° (36° + 72°).

43. E The question describes a 30°-60°-90° triangle. The ratios among the sides opposite those angles, respectively, are $1:\sqrt{3}:2$. The cosine of the 60° angle equals the length of its adjacent leg (1) divided by the length of the hypotenuse (2), or $\frac{1}{2}$.

44. J A complete circle contains 360°. Accordingly, referring to the figure below, the combined measure of all six angles is 360°. Given that the measures of all angles but a and b add up to 250°, $a + b = 110$. Since $a + b + x = 180$ (the three angles combine to form a straight line), $x = 70$.



45. C The measures of any triangle's three interior angles total 180°. Thus, $\angle T = 65°$. Since $m\angle T = m\angle R$, the sides opposite these angles are congruent; that is, $\overline{RS} \cong \overline{TS}$. Since A and B bisect their respective sides, $\overline{AS} \cong \overline{AR} \cong \overline{SB} \cong \overline{BT}$. However, $\overline{RT}$ is opposite the triangle's smallest angle. Thus, the length of $\overline{RT}$ must be less than the length of $\overline{RS}$.

46. G Multiply numerators together, and multiply denominators together. When combining, apply the rule $\left(\sqrt{a}\right)\left(\sqrt{b}\right) = \sqrt{ab}$ to the numerators. Then, factor and simplify:

$$\frac{\sqrt{10}}{\sqrt{2}} \times \frac{\sqrt{5}}{\sqrt{2}} = \frac{\sqrt{(10)(5)}}{\left(\sqrt{2}\right)^2}$$

$$= \frac{\sqrt{50}}{2}$$

$$= \frac{\sqrt{(25)(2)}}{2}$$

$$= \frac{5\sqrt{2}}{2}$$

47. A $4{,}230 \times 10^{-4} = 4.23 \times 10^{-1}$.

48. H Since the average of the four original numbers is 4, their sum must be 16. To calculate the average of all five numbers, divide the new sum (22) by the number of terms (5). The new average is $\frac{22}{5}$.

49. B Since the smallest circle has a radius of 1, the medium circle has a radius of 2, and hence the diameter of the large circle must be 6, which makes its radius 3. The arc of a semicircle is half the circle's circumference—that is, πr. So the length of the boundary of the shaded region is the sum of the arcs of the three semicircles: $\pi + 2\pi + 3\pi = 6\pi$.

50. H The answer choices suggest two binomial factors, one containing the term x^2 and the other containing the term x: $(x^2 + ?)\,(x + ?)$. Since the fourth term of the expression given in the question is -15, the product of the second terms of the two binomials must be -15. A bit of trial and error reveals that the factored form that yields the correct expression is $(x^2 - 5)\,(x + 3)$.

51. B The polygon is a regular hexagon (six-sided polygon). Each interior angle measures $720° \div 6 = 120°$. The angle whose measure is $x°$ combines with its vertical angle (interior to the hexagon) to total 360°—the total number of degrees in a circle. Thus, $x = 360 - 120 = 240$.

52. J The area of the entire ring between the two circumferences is the area of the larger circle minus the area of the smaller circle. Letting that area equal A:

$$\begin{aligned} A &= \pi(2r)^2 - \pi r^2 \\ &= 4\pi r^2 - \pi r^2 \\ &= 3\pi r^2 \end{aligned}$$

Drawing a line segment from C to O forms two right triangles, each with hypotenuse $2r$. Since $\overline{OC} = r$, by the Pythagorean theorem, the ratios among the triangle's sides are $1:\sqrt{3}:2$, with corresponding angle ratios 90°:60°:30°. $\angle A$ and $\angle B$ each = 30°. Accordingly, interior $\angle AOB = 120°$, or one third the degree measure of the circle. Hence, the area of the shaded region is two thirds of area A and must equal $2\pi r^2$.

53. C The equation defines a vertically oriented parabola, opening upward. Since the question indicates that the parabola intercepts the x-axis, it must intercept that axis at *two* points. To determine those two values, set $y = 0$, and then solve by the quadratic formula, with $a = 1$, $b = 2$, and $c = -3$:

$$x = \frac{-2 \pm \sqrt{2^2 - 4(1)(-3)}}{2(1)}$$

$$= \frac{-2 \pm \sqrt{4 + 12}}{2}$$

$$= \frac{-2 \pm \sqrt{16}}{2}$$

$$= \frac{-2 \pm 4}{2} = 1, -3$$

One of the two x-intercept values, 1, is within the interval [0,2].

54. G Given a surface area of 9 for each side, each edge of the cube is 3 units long, and the volume of the cube before the hole is cut is $3^3 = 27$. The square hole removed 3 cubic units of material ($1 \times 1 \times 3$), leaving a volume of 24.

55. C ΔADC is a right isosceles triangle, and therefore the ratio of each leg to the hypotenuse is $1:\sqrt{2}$. Given a hypotenuse of length 8, the length of each leg ($\overline{AD}$ and $\overline{DC}$) $= \frac{8}{\sqrt{2}} = \frac{8\sqrt{2}}{2} = 4\sqrt{2}$. Since ΔABC has a hypotenuse 8 units long and one leg ($\overline{BC}$) 4 units long, the other leg ($\overline{AB}$) must be $4\sqrt{3}$ units long. (The sides of triangle ΔABC are in the ratio $1:\sqrt{3}:2$.) You can now determine the perimeter of the quadrilateral: $4 + 4\sqrt{3} + 4\sqrt{2} + 4\sqrt{2}$.

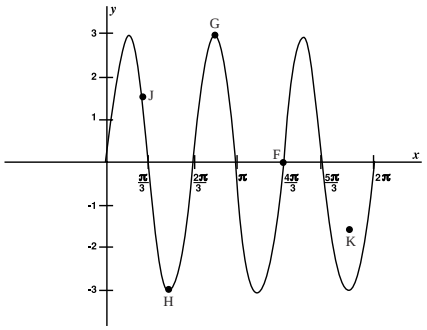
56. F You multiply x (the first term) by $\frac{y}{x}$ to obtain y (the second term). Thus, $\frac{y}{x}$ is the constant multiple. To obtain the third term, multiply the second term (y) by this multiple:

$$y \times \frac{y}{x} = \frac{y^2}{x} = \frac{y^2}{x}$$

57. A Either the cosine or sine function can relate the length of wire to the angle of θ degrees. Applying the cosine function (let x = the length of the wire):

$$\cos\theta = \frac{b}{x}$$
$$x\cos\theta = b$$
$$x = \frac{b}{\cos\theta}$$

58. K The curve's amplitude and its frequency over period 2π are each 3. Here's the curve's graph:



Observation reveals that the graph intercepts the x-axis in regular $\frac{1}{3}\pi$ intervals beginning at $x = \frac{1}{3}\pi$, and that it attains its positive as well as negative amplitude at regular $\frac{1}{3}\pi$ intervals as well. Choices (J) and (K) are the only two that provide points between an amplitude point and x-intercept. The point $\left(\frac{1}{4}\pi, \frac{3}{2}\right)$, which is choice (J), is the precise midpoint between $\left(\frac{1}{6}\pi, 3\right)$ and $\left(\frac{1}{3}\pi, 0\right)$, and therefore is a point on the curve. However, at $x = \frac{11}{6}\pi$, the curve is at negative amplitude -3. Hence, $\left(\frac{11}{6}\pi, -\frac{3}{2}\right)$, which is choice (K), cannot be a point on the curve.

59. D $f(x^2) = \frac{x^2}{2}$, and $(f(x))^2 = \left(\frac{x}{2}\right)^2$. Accordingly, $f(x^2) \div (f(x))^2 = \frac{x^2}{2} \div \frac{x^2}{4} = \frac{x^2}{2} \times \frac{4}{x^2} = 2$.

60. G In right-triangle trigonometry, given $\tan\theta = \frac{5}{12}$, the side opposite $\theta = 5$. Given $\cos\theta = \frac{12}{13}$, the hypotenuse $= 13$. In general, $\sin\theta = \frac{\text{opposite}}{\text{hypotenuse}}$; thus, $\sin\theta = \frac{5}{13}$.

Reading

1. D From the first paragraph, we understand that Newland is afraid his life is becoming overly routine and that he has developed a "horror of doing the same thing every day." The point is further reiterated in the next paragraph—by the repeated mention of "sameness," which he obviously abhors. Conversely, his longing for variety reveals itself in almost every aspect of his life, from the change in his daily routine to his suggesting that he and May strike out on their own simply because it would be something different from what is expected of them.

2. F May's response—"If you call it long"—strongly suggests that she considers her mother's proposed engagement period to be short, especially compared to the engagement periods of some of her acquaintances.

3. B In lines 41–54, Newland is contemplating his upcoming task of removing the metaphorical bandages from May's eyes, which in turn reminds him of the incidence of the cave-fish and how they had ceased to develop eyes because of the uselessness of eyes in the dark. Newland extends the metaphor to how the development of May's eyes (a metaphor for the mind) might have been stultified by the dark (metaphor for unenlightened upbringing), thus robbing her mind of newer, original thoughts.

4. G The passage informs us that Newland is a lawyer who is curious enough to read about new ideas put forth in scientific books, which in turn fosters questions about everything traditionally accepted—from travel to the situation of women in society.

5. C In lines 60–62, we're told of May's belief that her mother—who, in context, symbolizes "society"—would consider May's and Newland's wanting to travel as different—in other words, not too common during the time.

6. G May calls Newland "original" (line 65) and "artistic" (line 110). In line 91, May declared that she is "not clever enough" to argue with Newland; we can infer from this statement that she considers him more clever than her. However, the passage cites no evidence of Newland being amusing, either in word or in action.

7. C In line 93, May states that Newland's ideas are "rather vulgar." Then, speaking for both of them, she says, ". . . I should hate it—and so would you." This declaration marks the end of the discussion since May proceeds to a new topic.

8. J Lines 32–33 indicate that "she was nearing her twenty second birthday."

9. C Archer concludes, in lines 70–71, that May was "making the answers that instinct and tradition taught her to make." In context, it is reasonable to infer that tradition means the conventional behaviors, attitudes, and values of a culture.

10. F The passage makes us privy to Newland's understanding that his fiancée, who is typical of young women of the time, was spouting responses that simply parrot what she has been taught. The clear inference here is that she, like most young women of that time, had not been encouraged to think for herself or to speak her own mind.

11. C The fifth paragraph informs us that, in Massachusetts, the governor not only appointed most state officials but also had the ultimate power to veto legislature. Contrast the Massachusetts model to the Virginia model (described in the second paragraph), under

which the legislature was supreme and under which the approval of a special council was necessary for any action by the governor. In Pennsylvania, there was no governor, and the passage never mentioned Washington; thus, choices (A) and (D) cannot be correct.

12. J The paragraph in which the term "larger states" appears involves the debate about the allocation of power based on population. If you substitute "more populous states" for "larger states," the paragraph makes perfect sense.

13. B The sentence in which the word *onerous* appears informs us that the southern states feared "the imposition of onerous taxes or tariffs." The rest of the sentence tells us the reason for that fear—that these states depended economically on the exporting of certain raw materials. In this context, it makes sense that taxes or tariffs (on exported goods) would impose an economic burden on the southern states.

14. F The first sentence of the second paragraph informs us that the Virginia model borrowed its central principle from the thinking of the English philosopher John Locke.

15. B The first five paragraphs describe three distinct patterns (models) of governance used in three of the original states. The rest of the passage explains how the framers of the Constitution set about devising the structure of a newly united government by considering those three different patterns. Choice (B) nicely sums up the gist of the passage.

16. H The third paragraph informs us that Virginia's bicameral legislature, in which both chambers must concur to pass a bill, was "derived from Locke."

17. A The sixth paragraph tells us that the southern states feared the taxes and tariffs that Congress might impose if it were given the power to regulate international trade. Thus, it is reasonable to infer that the southern leaders would not be concerned with protecting the interests of whoever regulated international trade.

18. H The provision requiring that all funding bills originate in the House of Representatives afforded more power to the Northern states, which as a whole were more populous than the Southern states. Moreover, lines 119–121 indicate that the larger (more populous) states demanded this provision as "a precaution . . . to protect their financial interests."

19. B The fourth paragraph informs us that New Jersey *alone* extended the voting privilege to women.

20. J The information in the last paragraph—and especially the last sentence of the passage—is clearly contrary to the idea that choice (J) provides. According to the final paragraph, concessions made by both the North and the South served to postpone sectional difference until the future—in other words, they were not resolved at the time the new Constitution was adopted.

21. C To infer the meaning of this remark, read the entire sentence along with the preceding one. Together, the two quoted sentences seem to suggest that, for these people, all that is important is that the book's matter is good; if it is, then it doesn't matter whether the critics think highly of it or not.

22. F According to lines 20–23, the notion that some people have is that writers who want to be "classical," once they have their content, feel that they must "dress it up elegantly in a costume of style" in order to please the critics. Of the five choices, (F) provides a best restatement of this idea.

23. D The last sentence of the paragraph claims that, by definition: "A clear idea is expressed clearly, and a vague idea vaguely." But, this does not mean that a person with a vague idea (which is expressed vaguely) cannot then develop a similar, clearer idea (which is expressed clearly) from it.

24. J In the third paragraph, the author tells us that "just as science is the development of common sense, so is literature the development of common daily speech. The difference between science and common sense is simply one of degree; similarly with speech and literature."

25. A In lines 74–75, the author tells us that when you cannot express yourself, "depend on it that you have nothing precise to express. . . ."

26. G The word *canon* means "rule or criterion." When you judge something, you evaluate it according to a rule, standard, or *principle*. Hence, "set of principles," choice (B), makes perfect sense in context.

27. C In this paragraph, the author is making the point that the relationship between a reader and a book (or other writing) is similar to a relationship between two men. Unless you respect a writer's style of writing (as you might respect another person), any pleasure you derive from the writing (or from your acquaintance with the person) will be short-lived. Of the four answer choices, (C) best expresses this notion.

28. F In the sixth paragraph, the author suggests to any reader who finds herself evaluating a writing based on "style" to "forget that literary style exists"—for the reason that, ultimately, there really is no such thing as literary style.

29. B The word *incommode* means "disturb or trouble." Even if you didn't already know the word's meaning, you can infer its gist, based on the context. The author is saying here that, when you cannot express yourself, what's getting in the way is your desire to think more clearly. Another way of putting it is that this desire is *troubling* you, thereby holding you back from expressing yourself. (Besides, none of the other answer choices provides a word that makes as much sense in context as *troubles*.)

30. J Throughout the passage, the author makes the point repeatedly that what people consider writing "style" is not actually independent of, or distinct from, matter. For example, if a reader thinks a style is clumsy, it is actually the writer's ideas that are clumsy (lines 96–98). Similarly, if a reader thinks a writer's style "polished," it is actually the matter that is polished. [The word *clear* in choice (J) is a good synonym for *polished*.]

31. C In the third paragraph, the author informs us that the angler fish uses its bioluminescence to bait, or lure, marine creatures attracted to the spot of light as a possible source of food into the angler's gaping maw—in other words, to attract its prey.

32. J At the beginning of the fifth paragraph, the author informs us that "[s]ome marine animals use bioluminescence in their own defense," and then illustrates the point by describing the "burglar alarm effect." Also, notice that the first sentence of the next paragraph (lines 71–74) indicates that bioluminescence "is used not only in such interspecific feeding frays between predators and prey. . . ." It is reasonable to infer that the author is referring here to what is described in the preceding paragraph.

33. A In the final paragraph, the author indicates that most midwater animals have eyes that are sensitive only to blue-green and, by implication, suggests that they are not sensitive to yellow. Choice (A) contradicts what the author states and what the author infers.

34. F The phrase "selection pressure" refers to environmental forces that pressure a species to develop a specific characteristic—in this instance, acute eyesight.

35. D At the beginning of the final paragraph, the author informs us that there are instances "in which bioluminescence seems to be truly purposeless." Then, the author goes on to discuss the tomopterid worm as a specific case in point. It is reasonable to infer that the author is at a loss as to how to classify the function of the worm's luminescence.

36. J The word *elude* means "to adroitly escape detection or danger." Even if you don't know the word's meaning, you can infer it from its context. After its first sentence, the paragraph goes on to explain how a prey uses luminescence to avoid or escape predators. In context, then, the word *escape* makes perfect sense as a synonym for *elude*.

37. C The squid uses its luminescence as a form of camouflage so that a predator looking up toward the squid cannot identify it against the light background above it—in other words, the squid avoids detection by blending in with its background. (Admittedly, the analogy is not perfect, as the specific mechanisms used by two species differ; nevertheless, the analogy is the closest among the four choices.)

38. H In the seventh paragraph, the author states that, although bioluminescence clearly functions to help some species survive, "when we look at the large evolutionary picture, bioluminescence is generally considered a nonessential characteristic." The author then proceeds to provide details to support this general view and does not refute it.

39. A If it turns out that male tomopterid worms are sensitive to yellow light, then the emission of yellow bioluminescent fluid might very well serve some function, at least among tomopterid worms—perhaps having to do with mating.

40. G Although the author begins by pointing out examples of bioluminescence in fireflies and mushrooms, she soon narrows the discussion to examples of bioluminescence in marine life inhabiting the ocean's midwaters—and to its various essential and nonessential uses. Choice (G) neatly sums up the overall picture.

Science Reasoning

1. B Only with Resistor A was the current measured at 100mA when the temperature was 25°C. The corresponding voltage was 1.00.

2. H The question refers you to the column of Table 1 that is second farthest to the right. The current that corresponds to 4.50 volts (in the first column) is 90mA.

3. A With Resistor A, the percent increase from one voltage to the next higher increment results in the same percentage increase in measured current (mA). In other words, with Resistor A there is a linear relationship between voltage and current—which defines Resistor A as an ohmic device. Also, using Resistor A, the measured current at 23°C is the same as at 25°C—at all voltage levels. Thus, Resistor A is not a thermistor.

4. H In Table 1, the rightmost column shows the increase in current resulting from incremental increases in voltage. For each 0.05 volt increase, current increases by exactly 9.0mA. The relationship is linear. (Resistor C is an ohmic device.) Thus, it is possible to extrapolate from the known data. A current measuring 126mA is 36mA greater than 90.0mA, which Table 1 shows to result from 5.0 volts. Since each 18mA increase corresponds to a 1.0 volt increase, the voltage that produces 126mA current must be 7.00 volts.

5. D Resistor B is not considered a thermistor for the reason that it is not sensitive to different water temperatures. This is true regardless of whether the resistor affected the water temperature.

6. H Soil sample 2 from the forest contains 60% silt, the largest percentage of silt among the six samples.

7. A The diagram shows that all of the areas indicated as a type of loam are nearer to the corner that represents 100% sand than either of the other two corners (which represent 100% silt and 100% clay).

8. G Given that the amount of soil is the same in all six samples, you can simply add together percentages, then compare totals. For example, the total percent of clay from the three forest samples is 50% + 20% + 15% = 85%, while the total percent of clay from the three grassy-field samples is 33% + 6% + 11% = 50%. As you can see, the statement in choice (G) is clearly inaccurate. (Just the opposite is true.)

9. B The description of each experiment provides is that the percentages of each particle size were calculated. Since the tables list separate percentages for sand, silt, and clay, the clear inference here is that these three particle types are distinguishable from one another in their size.

10. J Sample 2 from the forest or sample 1 from the grassy field both contain more silt by percent than either sand or clay.

11. C As long as the particle proportions in each cup are known and the proportions in the cups differ, it is possible to compare sand, silt, and clay according to permeability with this experiment—then rank the six original samples according to permeability based on the data in Tables 1 and 2.

12. G The answer can easily be found in the fourth column of Table 1: the efficiency of design 2 (in terms of lift-to-drag ratio) was 40:1, a higher ratio than for any of the other wings.

13. B To handle the question, you need to infer that the "best" design would be one that is most efficient in terms of its lift-to-drag ratio as well as in terms of fuel consumption. Fortunately, Tables 1 and 2 each show that design 2 is most efficient.

14. J To answer this question, you need to understand the concepts of lift and drag. You also need to recognize that Table 1 provides the data relevant to the question. Ice building up on top of the wing would increase lift, since the higher the curved upper surface of the wing, the

greater the difference between the speed of air moving under the wing and above it. It would also increase drag, as suggested by the third column of Table 1: notice how the wings with the higher upper surface also have greater drag. Finally, ice building up under the wing would decrease the speed of air moving under the wing and so reduce lift. Thus, all three effects would occur.

15. D In both experiments that choice (D) identifies, conditions are the same: the same wing design is used, and the airspeed of 400 mph is the same. (Logically enough, the efficiency result is also the same: 20:1.)

16. H Remember that "efficiency" is the same as the lift-to-drag ratio. Since Table 3 indicates that efficiency decreases as speed increases, we can tell that drag must be increasing faster than lift.

17. A Since the question deals with speed, it's a good bet that experiment 3 (Table 3) is the one that's most relevant. In Table 3, notice that wing design 2 is more efficient than design 1 at lower speeds, but once a speed of 500 mph is reached, design 1 outperforms design 2. Thus, it appears that at high speeds a "flatter" wing design is more beneficial.

18. H According to the passage, when an electron moves from one possible energy state to another, the atom emits light whose energy level equals the difference in energy levels between the two states. This difference is seen as a spectral line, which is shown by each arrow in Figure 1.

19. B In Figure 1, the horizontal lines represent the different energy states. The length of an arrow between two horizontal lines represents the energy of the light released by the atom as an electron moves from one energy state to the other. As you can see, the lengths of the arrows vary the least in the depiction of Atom 2.

20. F According to the passage, observed spectral lines that are close together indicate transitions in which the change in energy levels is similar. In Figure 1, the length of an arrow represents the amount of change in that energy. In the depiction of Atom 1, notice that the three arrows in the top left are close in length, and the two arrows at the bottom left are close in length. These relationships depict the spectral lines described in choice (F).

21. D The frequencies listed in Table 1 indicate measurements of light energy. In the figure, the length of an arrow also indicates an amount of light energy. Thus, if the differences between measurements in Table 1 corresponds to the differences between the lengths of the arrows in one of the three atoms depicted in the figure, this correlation is a strong indication that the scientists are observing an atom like that hypothetical one. In Table 1, the two frequencies 868440 and 880570 are high numbers and very close to each other in value compared to the other two frequencies—just as the two longest arrows in the depiction of Atom 3 are very close in length to each other and significantly longer than the other arrows depicted for Atom 3.

22. G To determine the number of forbidden transitions in any one of the atoms, start at each energy level (horizontal line) and look for an arrow connecting it to each of the other energy levels. Each pair of levels that don't connect indicate a forbidden transition. Atom 1 has a total of two forbidden transitions. Atom 2 has only one forbidden transition. Atom 3 has no forbidden transitions.

23. D The age of the iryanthera grandis is 800 years—greater than one of the two hymenolobium specimens but younger than the other one.

24. G The passage indicates that counting rings can be an unreliable method of dating trees. Table 1 suggests that comparing diameters can be misleading as well. No information about comparing tree height is provided. The carbon-14 dating method appears to be the most reliable one, based on the information given.

25. A Among the 12 trees listed in Table 1, the two oldest (trees 3 and 11) have the two smallest growth rates, while the four youngest (trees 1, 8, 9, and 12) have the highest growth rates. This data strongly suggests that the older the tree, the slower its growth rate.

26. G The dipteryx odorata specimen (tree 11) is older and is larger in diameter than the sclerolobium specimen (tree 12). Looking just at this data, the researcher would reasonably conclude that comparing tree diameter is a reliable way to compare the age of any dipteryx odorata to the age of any sclerolobium.

27. C The two most recent catastrophic events occurred 400 and 700 years ago. Four of the 12 trees are older than 700 years and hence must have survived at least those two events.

28. H A single specimen is probably too small a sample to draw any reliable conclusions about the ages of other dipteryx odorata in the forest. It is entirely possible that tree 11 is just one of many dipteryx odorata specimens in the forest, most of which are very young. If so, this evidence would tend to show that this species is no better able, or perhaps even less able, to survive catastrophic events than the cariniana micrantha species.

29. C Both agree that comets were formed by the process of aggregation; however, Astronomer 3 theorizes that this process occurred as the fledgling comets wandered through "cold dark space"; then, as they entered our nebula, they were captured by our Sun's gravitational force. Astronomer 1 claims, however, that comets were formed by the same compression force that formed the planets in our solar system—inferring that their formation did not occur outside the nebula.

30. F Astronomer 2 theorizes that, during the solar system's formative stage, the inner solar system formed early and quickly, while material that had not coalesced was "blown out" farther away from the Sun. The clear inference here is that the process was an expansion out from a central mass (now our Sun). On the other hand, Astronomer 1 and Astronomer 3 both theorize that our solar system was formed by the collapse of a nebula.

31. B Choice (B) expresses Astronomer 3's viewpoint, while it runs contrary to Astronomer 2's theory that the comets that form the Oort Cloud were originally part of the same mass as our Sun and planets.

32. J According to Astronomer 1, there is good evidence that the giant outer planets of our solar system were disturbed, which supports the theory that comets collided and then became part of those planets. However, Astronomer 1 never mentions any evidence of similar disturbances among the smaller planets nearer the Sun. Moreover, common sense tells us that a moving object is more likely to strike a large object than a small one.

33. C Although it is Astronomer 1, rather than Astronomer 3, who claims that some comets coalesced with planets during the formation of our solar system, the theory of Astronomer 3 (under which our solar system's comets come from elsewhere in space) is not inconsistent with this claim.

34. F Astronomer 2 theorizes that the solar system resulted from a violent expansion from a central core and that larger chunks, which had sufficiently coalesced, remained near the center while the smaller bodies, which had not sufficiently coalesced, were thrown farther from the center. The fact that the two largest planets are farther away from the Sun than several planets that are significantly smaller tends to weaken this theory. This evidence is not inconsistent, however, with the theory of either Astronomer 1 or Astronomer 3.

35. A Table 1, which shows the results of Experiment 1, does not explicitly distinguish between urban, suburban, and rural sources of benzene emissions. Hence, as far as we know, the experiment was not concerned with comparing these three types of areas in terms of their benzene emission levels.

36. J The right-hand column in Table 1 indicates benzene exposure levels to various sources. Cigarettes and automobiles together account for 61% (41% + 20%) of an average individual's benzene exposure—a greater combined percent than any of the other combinations listed among the answer choices.

37. B In both geographic areas, the levels of outdoor exposure to chloroform (0.2 micrograms/meter^3 for industrial New Jersey and 0.1 micrograms/meter^3 for rural Maine) were lower than to any of the other four compounds.

38. H The passage indicates that most of the fine particles measured by Experiment 3 are the result of combustion; hence, it is reasonable to view Table 3 as comparing levels of combustion. Choice (H) compares the levels provided in the top row (NJ Industrial City) with the corresponding numbers in the bottom row (Maine Rural Township). Although some of the corresponding levels differ, the differences are slight, and in neither row are the numbers consistently higher nor lower than the numbers in the other row.

39. A Experiment 3 measured the number of airborne particles 10 microns in size or smaller. This experiment showed no significant difference between the New Jersey industrial area and the rural area in Maine in terms of the number of airborne particles in this size range. However, Experiment 2 showed significantly higher numbers of the five listed airborne compounds in the same industrial area of New Jersey than in the same rural area in Maine. If the compounds listed in Table 2 were 10 microns in size or smaller, then Table 3 should reflect this difference. But it doesn't. The most reasonable explanation for the discrepancy between the two tables is that the compounds listed in Table 2 are at least 10 microns in size and therefore were not measured in Experiment 3.

40. J The *total* level of personal nighttime exposure was 73 or 75 micrograms/meter^3, depending on the individual subject. The information given in the question suggests that only part of that exposure (45 micrograms/meter^3) occurred inside, while the remaining exposure (28–30 micrograms/meter^3) occurred outside.

Your Practice Test Scores

The results from your practice tests will give you a **general** idea of what you might score if you had to take the ACT Assessment today. To convert the number of right answers on your self-evaluation test into an ACT Assessment scaled score, do the following:

Refer to the table below. For each subject area, count the number of right answers and find that number in the left-hand column marked "Raw Score." Move to the right until you have the column for the appropriate subject. That is your ACT Assessment scaled score for the subject area. For example, if you had 39 right answers on your Math test, you would find the number 39 in the left-hand column, then move right to the Math column and see that you have an ACT Assessment scaled score of 23.

After you have found your scaled score for each subject, add all four scaled numbers together and divide by four. Round fractions to the nearest whole number; round upward. This number is your ACT Assessment composite score.

Score Conversion Table

Raw Score	English Scaled Score	Math Scaled Score	Reading Scaled Score	Science Reasoning Scaled Score
75	36			
74	35			
73	34			
72	33			
71	32			
70	31			
69	30			
68	30			
67	29			
66	29			
65	28			
64	28			
63	27			
62	27			
61	26			
60	26	36		
59	25	35		

Score Conversion Table				
Raw Score	**English Scaled Score**	**Math Scaled Score**	**Reading Scaled Score**	**Science Reasoning Scaled Score**
58	25	34		
57	24	34		
56	24	33		
55	23	32		
54	23	31		
53	23	30		
52	22	30		
51	22	29		
50	22	29		
49	21	28		
48	21	28		
47	21	27		
46	20	27		
45	20	26		
44	20	26		
43	19	25		
42	19	25		
41	19	24		
40	18	24	36	36
39	18	23	35	34
38	18	23	33	32
37	17	23	32	30
36	17	22	31	29
35	17	22	30	28
34	16	21	29	27
33	16	21	28	27
32	15	20	27	26
31	15	20	27	25
30	14	19	26	24
29	14	19	25	24

Score Conversion Table				
Raw Score	**English Scaled Score**	**Math Scaled Score**	**Reading Scaled Score**	**Science Reasoning Scaled Score**
28	14	19	25	23
27	13	18	24	23
26	13	18	23	22
25	13	18	23	22
24	12	17	22	21
23	12	17	21	21
22	12	17	20	20
21	11	16	19	20
20	11	16	18	19
19	11	16	18	19
18	10	15	17	18
17	10	15	16	18
16	10	15	15	17
15	9	14	15	17
14	9	14	14	16
13	9	14	14	16
12	8	13	13	15
11	8	13	13	15
10	7	13	12	14
9	7	12	11	13
8	6	12	10	12
7	6	11	8	11
6	5	11	7	10
5	4	10	6	9
4	3	8	5	8
3	2	6	4	7
2	2	5	3	5
1	1	3	2	3
0	1	1	1	1