# Physics Chapter 2 Practice Quiz : Math Skills Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_

1. Convert the following to standard decimal notation:

 a) 2.3 x 10-5

 b) 4.7 x 104

 c) –7.60 x 10-6

2. Convert the following to scientific notation, with the correct number of significant figures:

**Remember: a zero at the end of a decimal was probably written for a reason. 1.0200 is more precise than 1.02 is.**

**Scientific notation significant digits? Simple: They are all significant.**

 a) 0.0000455 c) 37.040

 b) 12,030 d) –1,120,000

3. Do the following math, rounding to the correct number of significant digits:

( Mult or Div: Keep lowest # of s.d.)

 (Add or Subtract: round to least precise value)

a) 22307 kg • 5700 m/s

 b) 53.005 m + 0.0020 m

 c) 97,500,000 N / 0.0045 N

 d) 8.720 x 10-4 – 3.5 x 10-5

4. Plot the following data, plot a best-fit line, and figure out the mathematical relationship (equation) between the variables. Express all final numbers as decimals to the correct number of significant digits.

|  |  |
| --- | --- |
| Position (cm) | Force (N) |
| 4.0 | 50. |
| 7.0 | 44 |
| 9.0 | 37 |
| 12 | 29 |
| 16 | 20. |
| 19 | 13 |
| 23 | 2.0 |

5) Solve for x: y = 3x2 + 5

6)

a) What is the formula for speed? s =

b) Rearrange that formula to solve for the other two variables.

7) Sketch the approximate shapes of the following equations.

y = 2x – 3 y = x2 – 1 y = x1/2 y = 2/x

8) If y = 2x3, what happens to y when

 ∙ x is doubled?

 ∙ x is tripled?

 ∙ x is halved?

9) If y = 1/x2, what happens to y when

 ∙ x is doubled?

 ∙ x is tripled?

 ∙ x is halved?

10) Solve: s = 3t + 1

 2s2 – 6t = 8t + 10s

# Physics Ch 2 Practice Quiz : Math Skills Name\_KEY\_ Date\_\_\_\_\_\_

1. Convert the following to standard decimal notation:

 a) 2.3 x 10-5 .000023

 b) 4.7 x 104 47,000

 c) –7.60 x 10-6 -0.00000760

2. Convert the following to scientific notation, with the correct number of significant figures:

**Remember: a zero at the end of a decimal was probably written for a reason. 1.0200 is more precise than 1.02 is.**

**Scientific notation significant digits? Simple: They are all significant.**

 a) 0.0000455 c) 37.040

 4.55 x 10-5 3.7040 x 101

 b) 12,030 d) –1,120,000

 12.03 x 104 -1.12 x 106

3. Do the following math, rounding to the correct number of significant digits:

( Mult or Div: Keep lowest # of s.d.)

 (Add or Subtract: round to least precise value)

a) 22307 kg • 5700 m/s 1.3 x 108 kg•m/s

 b) 53.005 m + 0.0020 m 53.007 m

 c) 97,500,000 N / 0.0045 N 2.2 x 1010 N

 d) 8.720 x 10-4 – 3.5 x 10-5 8.37 x 10-4

4. Plot the following data, plot a best-fit line, and figure out the mathematical relationship (equation) between the variables. Express all final numbers as decimals to the correct number of significant digits.

|  |  |
| --- | --- |
| Position (cm) | Force (N) |
| 4.0 | 50. |
| 7.0 | 44 |
| 9.0 | 37 |
| 12 | 29 |
| 16 | 20. |
| 19 | 13 |
| 23 | 2.0 |

y = -2.5x + 60.

Force = -2.5 N/cm ∙ position + 60. N

5) Solve for x: y = 3x2 + 5

 $x=\sqrt{\frac{y-5}{3}}$

6)

a) What is the formula for speed? s = $\frac{distance}{time}$

 b) Rearrange that formula to solve for the other two variables.

 $time=\frac{distance}{speed} distance=speed∙time$

7) Sketch the approximate shapes of the following equations.

y = 2x – 3 y = x2 – 1 y = x1/2 y = 2/x

8) If y = 2x3, what happens to y when

 ∙ x is doubled? y goes up by factor of 8

 ∙ x is tripled? y goes up by factor of 27

 ∙ x is halved? y goes down by factor of 8

9) If y = 1/x2, what happens to y when

 ∙ x is doubled? y goes down by factor of 4

 ∙ x is tripled? y goes down by factor of 9

 ∙ x is halved? y goes up by factor of 4

10) Solve: s = 3t + 1

 2s2 – 6t = 8t + 1

 (s,t) = (7,2) or (1/3, -2/9)

(Use substitution, plugging in (3t+1) for s in the second equation.)