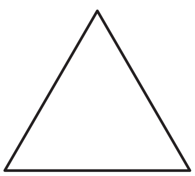
1.1 Start Thinking

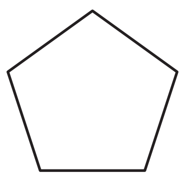
Using dynamic geometry software, connect three lines to make a triangle. Then click and hold on a vertex of the triangle (a vertex is where two lines meet to form a point). Move the vertex left, right, up, and down.

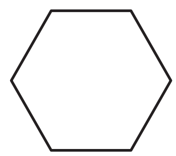
What do you notice about how the angle is changing and how it affects the other angles of the triangle? Explain how this could be useful in explaining why the sum of the angles in any triangle is 180°.

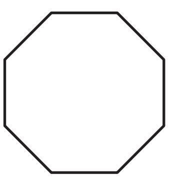
1.1 Warm Up

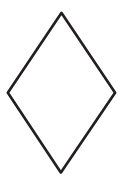
Name the polygon.

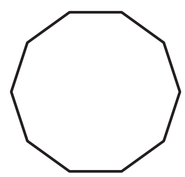
1. 

2. 

3. 

4. 

5. 

6. 

1.1 Cumulative Review Warm Up

Solve for the variable.

1. $\dfrac{25}{8} = \dfrac{200}{b}$

2. $\dfrac{8}{20} = \dfrac{a}{65}$

3. $\dfrac{48}{72} = \dfrac{c}{156}$

4. $\dfrac{3}{36} = \dfrac{p}{60}$

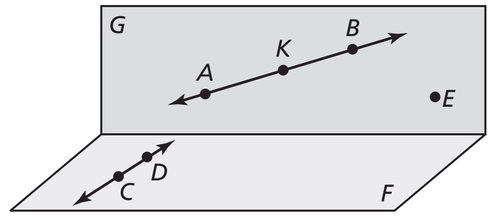
5. $\dfrac{30}{23} = \dfrac{120}{c}$

6. $\dfrac{11}{15} = \dfrac{u}{60}$

Name____ Date__________

1.1 Practice A

In Exercises 1–3, use the diagram.

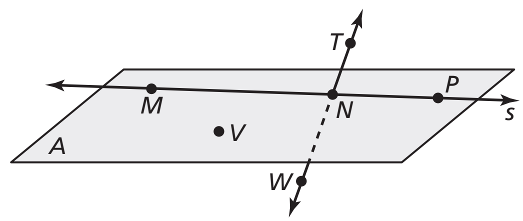


1. Name two points.

2. Name two lines.

3. Name the plane that contains point A, B, and E.

In Exercises 4–7, use the diagram.



4. Give one other name for $\overleftrightarrow{MN}$.

5. Name three points that are collinear.

6. Name three points that are coplanar.

7. Name a point that is *not* coplanar with points N, P, and T.

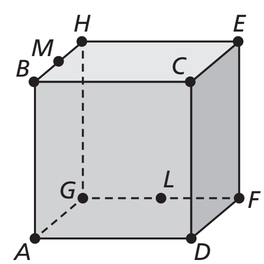
In Exercises 8–10, sketch the figure described.

8. plane A and line c intersecting at all points on line c

9. $\overleftrightarrow{GM}$ and $\overleftrightarrow{GH}$

10. line $\overleftrightarrow{CD}$ and plane X not intersecting

In Exercises 11–14, use the diagram.



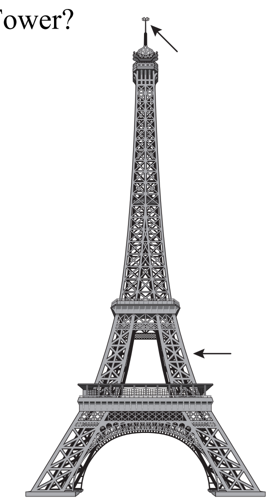
11. Name a point that is coplanar with points A, D, and G.

12. Name the intersection of plane HEG and plane DFE.

13. Name a point that is collinear with BH.

14. Name a point that is *not* coplanar with points C, E, and M.

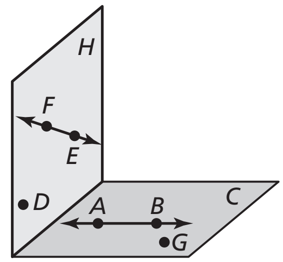
15. What geometric terms are modeled by the Eiffel Tower?



Name ______________________________ Date __________

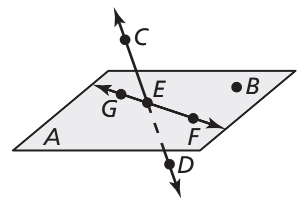
1.1 Practice B

In Exercises 1–4, use the diagram.



1. Name three points.
2. Name two lines.
3. Name all points in plane H.
4. Name the plane that contains points A, B, and G.

In Exercises 5–8, use the diagram.



5. Name one pair of opposite rays.
6. Name two points that are collinear with point D.
7. Name the point of intersection of line CD with plane A.
8. Name a point that is *not* coplanar with plane A.

In Exercises 9–11, sketch the figure described.

9. plane A and line $\overleftrightarrow{BC}$ intersecting at point C
10. plane M and plane N *not* intersecting
11. lines a, b, and c intersecting at three points
12. A tripod can be used to level a camera. What geometric figure is modeled by the intersection of a tripod to the ground? Explain.

In Exercises 13 and 14, graph the inequality on a number line. Tell whether the graph is a *segment*, a *ray*, a *point*, or a *line*.

13. $x \geq 2$

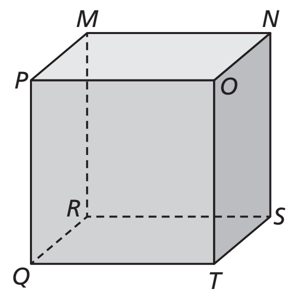
14. $-4 < x < 4$

15. What is the maximum number of times two planes can intersect? What is the minimum number of times they can intersect?

Name____ Date__________

1.1 Enrichment and Extension

Points, Lines, and Planes

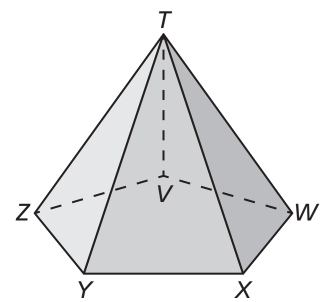


1. Name the three planes that intersect at point P.

2. Name the intersection of plane PQO and plane NMP.

3. Name three lines that intersect at point S.

4. Are points P, M, and Q collinear? Are they coplanar?



5. Name the intersection of plane XYZ and plane TVW.

6. Name the two planes that intersect at $\overline{XW}$.

7. Name three planes that intersect at point Z.

8. In the figure at right, are there any places where at least four planes intersect? Explain your reasoning.

An equation in two-dimensional space can be written in the standard form $AX + BY = C$. The standard form of a linear equation in three-dimensional space can be written as $AX + BY + CZ = D$, where the point (x, y, z) is a point on the line.

Determine if the given two lines intersect at the given point. Explain your reasoning.

9. $3x + 2y + 4z = 12$
   $x + y + 2z = 6$
   $(0, 4, 1)$

10. $-2x - 4y + z = 8$
    $4x + 2y = -5$
    $(-2, 0, 3)$

Name ____ Date _________

1.1 Puzzle Time

What Did The Point Say To The Segment?

A	B	C	D	E	F
G	H	I	J		

Complete each exercise. Find the answer in the answer column. Write the word under the answer in the box containing the exercise letter.

$\overline{AB}$ FOR
true ANT
C BECAUSE
line I'LL
plane *ABC* A
ray DOOR
coplanar HALFWAY
A IN

Complete each sentence.

A. Through any two points there is exactly one _________ .

B. Through any three points which are not collinear, there is exactly one _________ .

C. _________ points lie on the same line.

D. _________ points lie on the same plane.

Name each figure shown in the diagram.

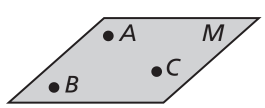
E.

F.

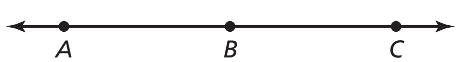
G.

H.

I.



J. $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are opposite rays. True or false?



$\overrightarrow{AB}$ THE
BA TEACHER
collinear YOU
B CALLED
false SPLIT
point LOCKS
plane MEET
$\overleftrightarrow{AB}$ MIDDLE