

## 1-1 Study Guide and Intervention *(continued)*

### Points, Lines, and Planes

**Points, Lines, and Planes in Space** Space is a boundless, three-dimensional set of all points. It contains lines and planes. The intersection of two or more geometric figures is the set of points they have in common.

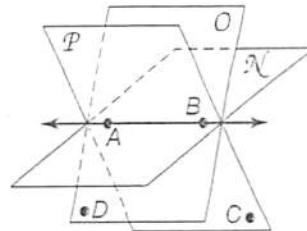
#### Example

- a. Name the intersection of the planes  $\mathcal{O}$  and  $\mathcal{N}$ .

The planes intersect at line  $\overleftrightarrow{AB}$ .

- b. Does  $\overleftrightarrow{AB}$  intersect point  $D$ ? Explain.

No.  $\overleftrightarrow{AB}$  is coplanar with  $D$ , but  $D$  is not on the line  $\overleftrightarrow{AB}$ .



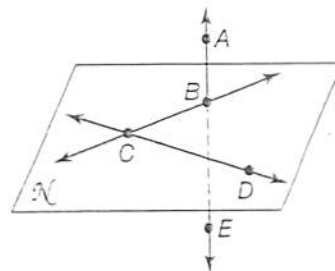
### Exercises

Refer to the figure.

1. Name the intersection of plane  $\mathcal{N}$  and line  $\overleftrightarrow{AE}$ .

2. Name the intersection of  $\overleftrightarrow{BC}$  and  $\overleftrightarrow{DC}$ .

3. Does  $\overleftrightarrow{DC}$  intersect  $\overleftrightarrow{AE}$ ? Explain.

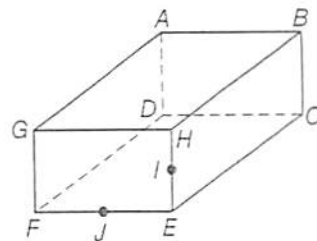


Refer to the figure.

4. Name the three line segments that intersect at point  $A$ .

5. Name the line of intersection of planes  $GAB$  and  $FEH$ .

6. Do planes  $GFE$  and  $HBC$  intersect? Explain.

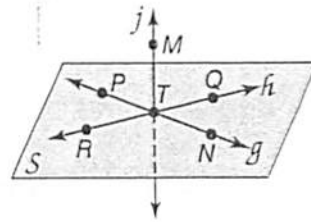


# 1-1 Practice

## Points, Lines, and Planes

Refer to the figure.

1. Name a line that contains points  $T$  and  $P$ .
2. Name a line that intersects the plane containing points  $Q$ ,  $N$ , and  $P$ .

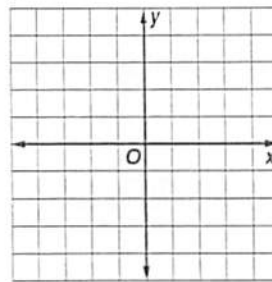


3. Name the plane that contains  $\overleftrightarrow{TN}$  and  $\overleftrightarrow{QR}$ .

Draw and label a figure for each relationship.

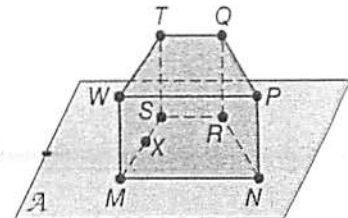
4.  $\overleftrightarrow{AK}$  and  $\overleftrightarrow{CG}$  intersect at point  $M$  in plane  $\mathcal{T}$ .

5. A line contains  $L(-4, -4)$  and  $M(2, 3)$ . Line  $q$  is in the same coordinate plane but does not intersect  $\overleftrightarrow{LM}$ . Line  $q$  contains point  $N$ .



Refer to the figure.

6. How many planes are shown in the figure?
7. Name three collinear points.
8. Are points  $N$ ,  $R$ ,  $S$ , and  $W$  coplanar? Explain.



**VISUALIZATION** Name the geometric term(s) modeled by each object.

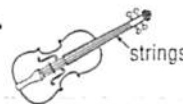
9.



10. tip of pin



11.



12: a car antenna

13. a library card

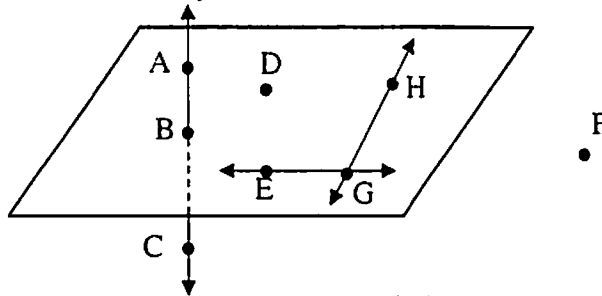
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

Points, Lines, and Planes Worksheet A

Use the figure below to answer questions 1- 6.



1) Name the plane with 3 letters: \_\_\_\_\_ (2)  $\overleftrightarrow{AC}$  intersects the plane at what point? \_\_\_\_\_

3)  $\overleftrightarrow{HG}$  and  $\overleftrightarrow{GE}$  intersect at what point? \_\_\_\_\_ (4) Name 3 collinear points: \_\_\_\_\_

5) Name a point NOT on the plane: \_\_\_\_\_ (6) Are points F, D, E and B coplanar? \_\_\_\_\_

Draw and label a figure for each exercise:

7) P (8) Plane XYZ (9)  $\overleftrightarrow{TQ}$  (10)  $f$

11)  $\varepsilon$  intersecting  $\overleftrightarrow{TQ}$  at M (12) A not on Plane S (13) 3 non collinear points G, T, Y

Use the figure at the right to answer questions 14-20.

14) How many planes are there in the figure? \_\_\_\_\_

15) How many planes contain H? \_\_\_\_\_

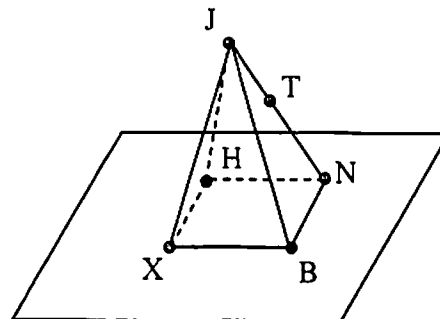
16) Name three collinear points: \_\_\_\_\_

17) Name two points not on the Plane XBN: \_\_\_\_\_

18) Name four points that are coplanar: \_\_\_\_\_

19) Name a line that does NOT contain J: \_\_\_\_\_

20) Name three non-collinear points: \_\_\_\_\_



**Review**




**Points, Lines, and Angles**



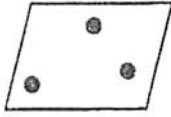
Write the letter for the correct term beside each definition.

1. \_\_\_\_\_ The point at which two lines intersect
2. \_\_\_\_\_ A set of points in a straight path that extends infinitely in both directions
3. \_\_\_\_\_ Two lines that form a right angle at their point of intersection
4. \_\_\_\_\_ Position in space, often represented by a dot
5. \_\_\_\_\_ A finite portion of a line that has two endpoints
6. \_\_\_\_\_ Three or more points that lie in the same line
7. \_\_\_\_\_ A point that bisects a line segment
8. \_\_\_\_\_ Lines in the same plane that never intersect
9. \_\_\_\_\_ A portion of a line that extends from one endpoint infinitely in one direction
10. \_\_\_\_\_ A flat surface that extends infinitely in all directions
11. \_\_\_\_\_ Two rays that share an endpoint and extend in opposite directions to form a line
12. \_\_\_\_\_ Something that relates to or resembles a line
13. \_\_\_\_\_ Three or more points that lie in the same plane
14. \_\_\_\_\_ If three points are coplanar, then the line containing two of the points is in the same plane.

- |                          |
|--------------------------|
| A. opposite rays         |
| B. point                 |
| C. ray                   |
| D. point of intersection |
| E. linear                |
| F. midpoint              |
| G. parallel lines        |
| H. collinear points      |
| I. perpendicular lines   |
| J. line segment          |
| K. line                  |
| L. plane                 |
| M. coplanar points       |
| N. flat-plane rule       |

Write the letter for the correct term beside each diagram.

15. \_\_\_\_\_ 
17. \_\_\_\_\_ 
19. \_\_\_\_\_ 

16. \_\_\_\_\_ 
18. \_\_\_\_\_ 
20. \_\_\_\_\_ 

- |                       |
|-----------------------|
| A. intersecting lines |
| B. line               |
| C. line segment       |
| D. parallel lines     |
| E. coplanar points    |
| F. collinear points   |

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