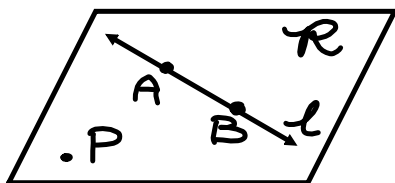


1-1 Points, Lines, and Planes

NEW VOCABULARY: Write the definition next to each term.

Undefined term: not formally explained → examples/descriptions.Point: a location → has neither size nor shape.Line: made up of points → has no thickness or width.Plane: flat surface made up of points that extends infinitely in all directions.Collinear: points that lie on the same line. (2 or more)Coplanar: points that lie on the same plane. (2 or more)Intersection: the set of all points that two or more geometric figures have in common.Definition/defined term: terms explained by using undefined terms or other defined terms.Space: a boundless, three-dimensional set of all points. Space can contain lines and planes.

Use the space below to model a point, line, and plane with a representative drawing. Label your drawing.



Plane R
contains line l
with Points A and B
collinear on line l
and Point P is NOT
on line l .

Points P, A, and B are coplanar.

Points P, A, B, and C are NOT coplanar.

Compare *undefined* and *defined terms* by completing the table. Provide definitions and examples.

TERM	DEFINITION	EXAMPLES
defined term	explain with: - undefined terms - other defined terms	definitions of: - space - collinear - coplanar
undefined term	explain with: - examples - descriptions	- point - line - plane

What does the prefix *co-* mean? How can it help you remember the meaning of *collinear*?

CO = together or jointly.

NAME _____ DATE _____ PERIOD _____

1-1 Study Guide and Intervention

Points, Lines, and Planes

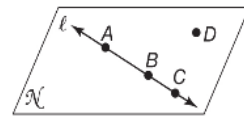
Name Points, Lines, and Planes In geometry, a **point** is a location, a **line** contains points, and a **plane** is a flat surface that contains points and lines. If points are on the same line, they are **collinear**. If points are on the same plane, they are **coplanar**.

Example: Use the figure to name each of the following.

a. a line containing point *A*

The line can be named as ℓ . Also, any two of the three points on the line can be used to name it.

\overleftrightarrow{AB} , \overleftrightarrow{AC} , or \overleftrightarrow{BC}



b. a plane containing point *D*

The plane can be named as plane *N* or can be named using three noncollinear points in the plane, such as plane *ABD*, plane *ACD*, and so on.

plane *BCD*

Exercises

Refer to the figure.

1. Name a line that contains point *A*.

line ℓ , \overleftrightarrow{AC} , \overleftrightarrow{AB} ,

2. What is another name for line *m*?

\overleftrightarrow{BD}

3. Name a point not on \overleftrightarrow{AC} .

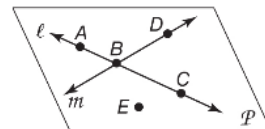
E, *D*

4. What is another name for line ℓ ?

\overleftrightarrow{BC} , \overleftrightarrow{AC} , \overleftrightarrow{AB}

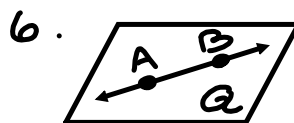
5. Name a point not on line ℓ or line *m*.

E

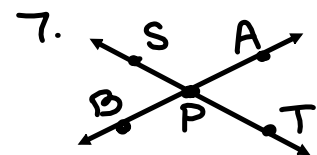


Draw and label a figure for each relationship.

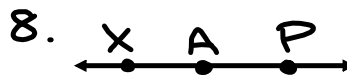
6. \overleftrightarrow{AB} is in plane *Q*.



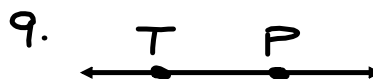
7. \overleftrightarrow{ST} intersects \overleftrightarrow{AB} at *P*.



8. Point *X* is collinear with points *A* and *P*.



9. Point *Y* is not collinear with points *T* and *P*.



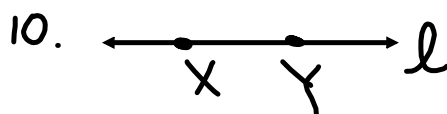
10. Line ℓ contains points *X* and *Y*.

$\bullet Y$

Chapter 1

5

Glencoe Geometry



NAME _____ DATE _____ PERIOD _____

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.

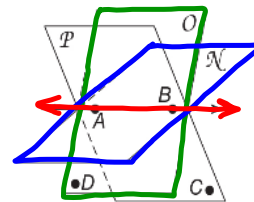
Example

- a. Name the intersection of the planes O and 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} .



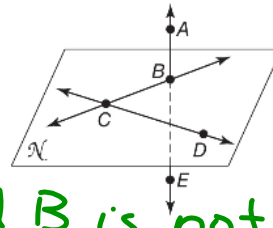
Exercises

Refer to the figure.

1. Name the intersection of plane N and line \overleftrightarrow{AE} . **Point B**

2. Name the intersection of \overleftrightarrow{BC} and \overleftrightarrow{DC} . **Point C**

3. Does \overleftrightarrow{DC} intersect \overleftrightarrow{AE} ? Explain. **No, because \overleftrightarrow{AE} intersects Plane N at B , and B is not on \overleftrightarrow{CD} .**



Refer to the figure.

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

\overline{GA} , \overline{AB} , \overline{AD}

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

\overleftrightarrow{GH}

6. Do planes GFE and HBC intersect? Explain.

Yes, they intersect at \overline{HE} .

