



- I can name and sketch geometric figures. (CC.9-12.G.CO.1)

In geometry, the words **point**, **line**, and **plane** are **undefined terms**. These terms do not have formal definitions, but there is agreement about what they mean and represent.

Term	Characteristics	Diagram	Words and Symbols
Point	Has no size. It is named using a capital letter.		Point K
Line	0 endpoints. Extends forever in two directions. Use two points on the line to name or a single lower case letter.		\overleftrightarrow{AB} , \overleftrightarrow{BA} , Line AB, Line BA or simply just m
Line segment or segment	2 endpoints. Has a finite length. Named using endpoints.		Segment XY Or \overline{XY} or \overline{YX}
Ray	1 endpoint. Extends forever in one direction. Named using the initial point first and then any point on the ray in the direction its headed 😊		Ray RQ Or \overrightarrow{RQ}
Opposite Rays	Have same endpoint and go in opposite directions to form a line (are collinear)		\overrightarrow{BA} and \overrightarrow{BC} are opposite rays
Plane	Extends forever in all directions. Named using at least three noncollinear points or by a single letter that is not a point on the plane.		Plane V Or Plane EFG

Draw and label a diagram for each figure.

1. Point W

2. Line MN

3. \overline{JK}

4. \overrightarrow{EF}

Name each figure using words and symbols.

5.



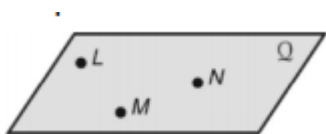
6.

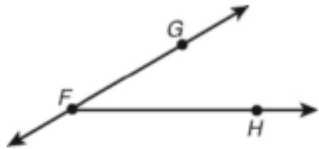
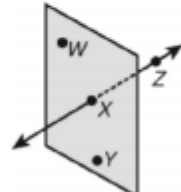


7.



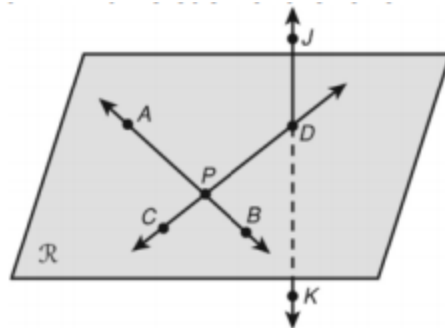
8. Name the plane in two different ways.



Term	Meaning	Model
collinear	points that lie on the same line	 <p>F and G are collinear. F, G, and H are noncollinear.</p>
noncollinear	points that do not lie on the same line	
coplanar	points or lines that lie in the same plane	 <p>W, X, and Y are coplanar. W, X, Y, and Z are noncoplanar.</p>
noncoplanar	points or lines that do not lie in the same plane	

Figures that intersect share a common set of points. In the first model above, \overline{FH} intersects \overline{FG} at point F . In the second model, \overline{XZ} intersects plane WXY at point X .

Use the figure for Exercises 9 – 14. Name each of the following.



9. three collinear points

10. Three noncollinear points

11. four coplanar points

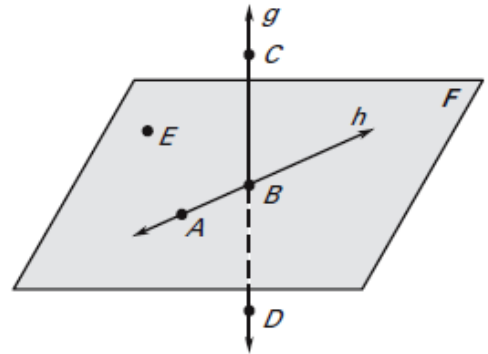
12. Four noncoplanar points

13. two lines that intersect \overline{CD}

14. The intersection of \overline{JK} and plane \mathcal{R}

In Exercises 1–8, use the diagram.

1. Give two other names for \overleftrightarrow{AB} .
2. Name three points that are collinear.
3. Give another name for plane F .
4. Name a point that is not coplanar with A , B , and C .
5. Give another name for \overline{CD} .
6. Name three rays with endpoint B .
7. Name a pair of opposite rays.
8. Give another name for \overleftrightarrow{CD} .

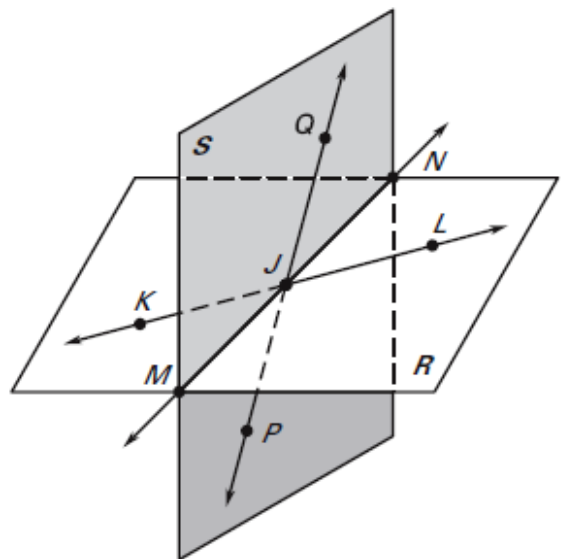


Sketch the figure described.

9. Three points that are collinear
10. Four points that are coplanar
11. Three lines that intersect at one point
12. A line and a plane that intersect at one point

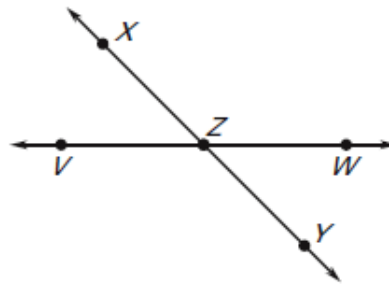
In Exercises 13–20, use the diagram.

13. Are points J , K , and L collinear?
14. Are points J , K , and L coplanar?
15. Are points J , K , and M collinear?
16. Are points J , K , and M coplanar?
17. Name the intersection of \overleftrightarrow{KL} and \overleftrightarrow{PQ} .
18. Name the intersection of \overleftrightarrow{PQ} and plane KMN .
19. Name the intersection of plane R and plane S .
20. Name three pairs of opposite rays.



In Exercises 21–23, use the diagram.

- 21. Name 12 different rays.
- 22. Name 2 pairs of opposite rays.
- 23. Name 2 lines that intersect at point Z .



- 24. Draw three noncollinear points A , B , and C . Sketch \overleftrightarrow{AB} . Then add a point D and sketch \overleftrightarrow{CD} so that \overleftrightarrow{CD} intersects \overleftrightarrow{AB} at point B .

You are given an equation of a line and a point. Use substitution to determine whether the point is on the line.

- 25. $y = x + 4; A(3, 7)$
- 26. $y = x - 5; A(1, 6)$
- 27. $y = -x - 2; A(-8, -10)$