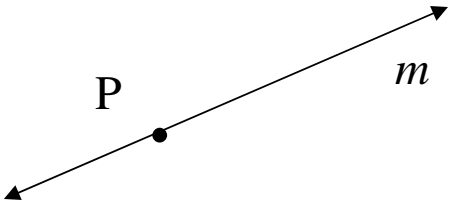
Phrases we can use to describe figures

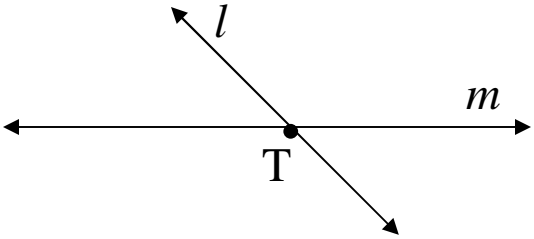
- A point lies ON a line
- A point IS ON a line
- A line CONTAINS a point
- A line PASSES THROUGH a point
- A line lies ON a plane or IN a plane
- A plane CONTAINS points and/or lines
- Two lines INTERSECT
- Two lines both CONTAIN a shared point
- A point IS THE INTERSECTION of two lines
- Two planes INTERSECT
- One line and one plane INTERSECT

Examples

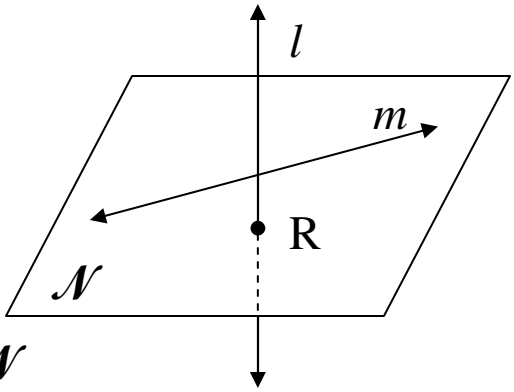
- P is on m
- m contains P
- m passes through P



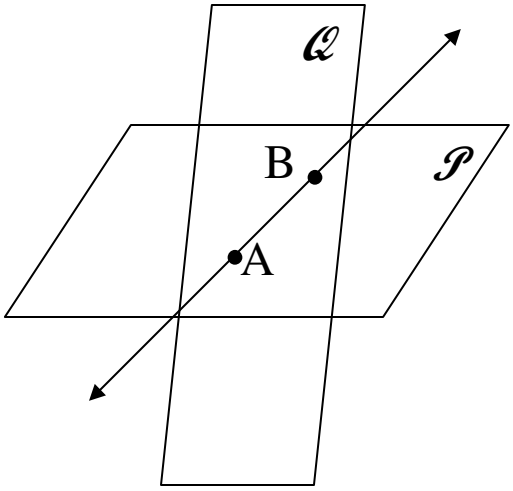
- l and m intersect in T
- l and m both contain T
- T is the intersection of l and m



- l and R are in $\mathcal{N}$
- $\mathcal{N}$ contains R and l
- m intersects $\mathcal{N}$ at R
- R is the intersection of m with $\mathcal{N}$



- $\overleftrightarrow{AB}$ is in $\mathcal{P}$ and is in $\mathcal{Q}$
- $\mathcal{P}$ and $\mathcal{Q}$ both contain $\overleftrightarrow{AB}$
- $\mathcal{P}$ and $\mathcal{Q}$ intersect in $\overleftrightarrow{AB}$
- $\overleftrightarrow{AB}$ is the intersection of $\mathcal{P}$ and $\mathcal{Q}$



Practice

Draw each of the figures described:

1. Line k contains point T.

2. Lines m and n intersect at point Q.

3. Points R, S and T are in plane $\mathcal{M}$, but point W does not lie in plane $\mathcal{M}$.

4. k does not intersect $\mathcal{M}$.

5. t intersects $\mathcal{G}$ at point D.

6. l, m, and j intersect at P.

7. $\mathcal{N}$ contains d.

8. A, B, C and D are noncollinear.

9. M is on $\overleftrightarrow{GH}$.

10. $\mathcal{B}$ contains p. R, S and T lie in $\mathcal{B}$, but only R and S lie on p.

11. k and w are coplanar.

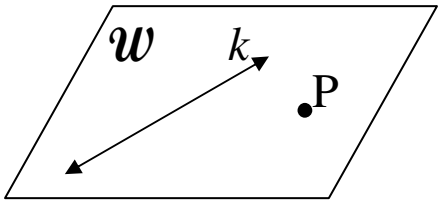
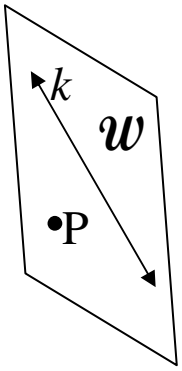
12. A, B, and D are coplanar, but only A and B are collinear.

Describing figures

Working in pairs:

1. Draw a figure that contains at least three of points, lines, or planes. Be sure to include labels on the structures.
2. Without showing the figure to your partner, describe the figure as exactly as possible.
3. Your partner must draw the figure you describe, based only on what you say.
4. Check to see if the figures are the same.
5. Keep in mind that your figures may appear different, but they should have the same important characteristics.

Example

I draw:	I say:	partner draws:
	Line *k* and point P are on plane $\mathcal{W}$, but point P is not on line *k*.	

Turn in 4 correct figure pairs (you and your partner each describe 2) for a classroom grade.

Assignment for describing figures

Lesson 1.1 "Practice and Problem Solving" #13-21, 32-39, 53