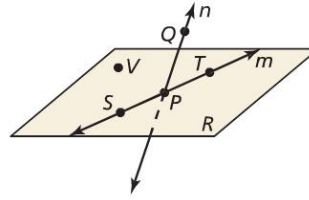


- a. Give two other names for \overleftrightarrow{PQ} and plane R .
- b. Name three points that are collinear. Name four points that are coplanar.

SOLUTION



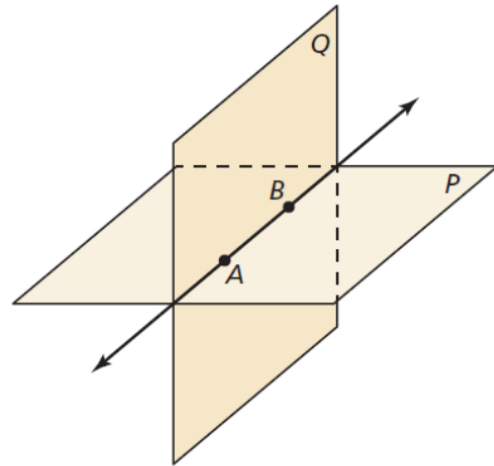
- a. Other names for \overleftrightarrow{PQ} are \overleftrightarrow{QP} and line n . Other names for plane R are plane SVT and plane PTV .
- b. Points S , P , and T lie on the same line, so they are collinear. Points S , P , T , and V lie in the same plane, so they are coplanar.

Work with a partner.

a. Describe and sketch the ways in which two lines can intersect or not intersect. Give examples of each using the lines formed by the walls, floor, and ceiling in your classroom.

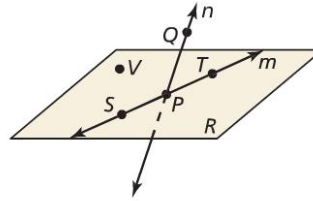
b. Describe and sketch the ways in which a line and a plane can intersect or not intersect. Give examples of each using the walls, floor, and ceiling in your classroom.

c. Describe and sketch the ways in which two planes can intersect or not intersect. Give examples of each using the walls, floor, and ceiling in your classroom.



- Give two other names for \overleftrightarrow{PQ} and plane R .
- Name three points that are collinear. Name four points that are coplanar.

SOLUTION

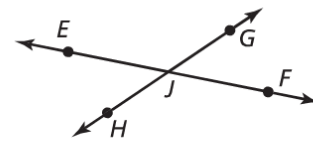


- Other names for \overleftrightarrow{PQ} are \overleftrightarrow{QP} and line n . Other names for plane R are plane SVT and plane PTV .
- Points S , P , and T lie on the same line, so they are collinear. Points S , P , T , and V lie in the same plane, so they are coplanar.

Click the example to show the next step.

- Give another name for \overleftrightarrow{GH} .
- Name all rays with endpoint J . Which of these rays are opposite rays?

SOLUTION



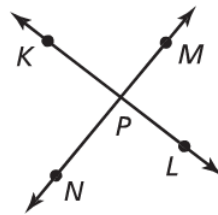
- Another name for \overleftrightarrow{GH} is \overleftrightarrow{HG} .
- The rays with endpoint J are \overrightarrow{JE} , \overrightarrow{JG} , \overrightarrow{JF} , and \overrightarrow{JH} . The pairs of opposite rays with endpoint J are \overrightarrow{JE} and \overrightarrow{JF} , and \overrightarrow{JG} and \overrightarrow{JH} .

- Use the diagram in Example 1. Give two other names for \overleftrightarrow{ST} . Name a point that is *not* coplanar with points Q , S , and T .

- Use the diagram in Example 1. Give two other names for \overleftrightarrow{ST} . Name a point that is *not* coplanar with points Q , S , and T . \overleftrightarrow{PT} , line m ; V

[Hide Answers](#)

Use the diagram.



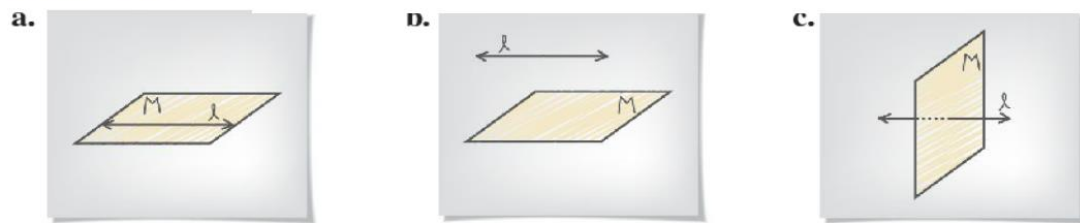
- Give another name for \overline{KL} .
- Are \overrightarrow{KP} and \overrightarrow{PK} the same ray? Are \overrightarrow{NP} and \overrightarrow{NM} the same ray? Explain.

- Give another name for \overline{KL} . \overline{LK}
- Are \overrightarrow{KP} and \overrightarrow{PK} the same ray? Are \overrightarrow{NP} and \overrightarrow{NM} the same ray? Explain.
no; yes; \overrightarrow{KP} and \overrightarrow{PK} have different endpoints and are going in different directions. \overrightarrow{NP} and \overrightarrow{NM} have the same endpoint and are going in the same direction.

[Hide Answers](#)

- a. Sketch a plane and a line that is in the plane.
- b. Sketch a plane and a line that does not intersect the plane.
- c. Sketch a plane and a line that intersects the plane at a point.

SOLUTION

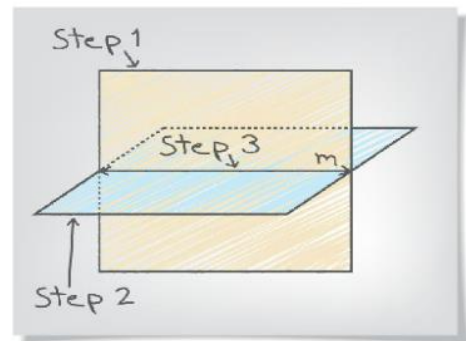


Sketch two planes that intersect in a line.

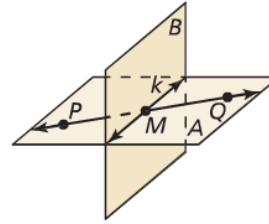
Sketch two planes that intersect in a line.

SOLUTION

- Step 1** Draw a vertical plane. Shade the plane.
- Step 2** Draw a second plane that is horizontal. Shade this plane a different color. Use dashed lines to show where one plane is hidden.
- Step 3** Draw the line of intersection.



4. Sketch two different lines that intersect a plane at the same point.

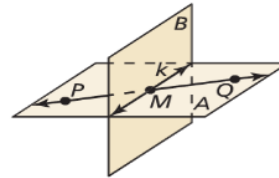
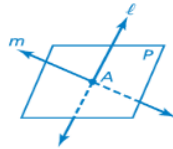


Use the diagram.

5. Name the intersection of \overrightarrow{PQ} and line k .
6. Name the intersection of plane A and plane B .
7. Name the intersection of line k and plane A .

4. Sketch two different lines that intersect a plane at the same point.

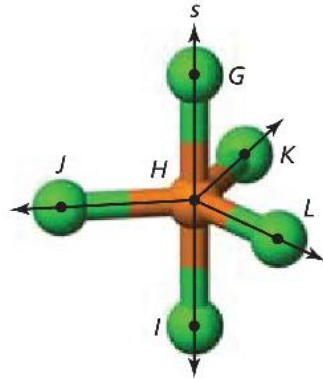
Sample answer:



Use the diagram.

5. Name the intersection of \overrightarrow{PQ} and line k . M
6. Name the intersection of plane A and plane B . $line\ k$
7. Name the intersection of line k and plane A . $line\ k$

Use the diagram that shows a molecule of phosphorus pentachloride.



8. Name two different planes that contain line s .
9. Name three different planes that contain point K .
10. Name two different planes that contain \overrightarrow{HJ} .

8. Name two different planes that contain line s .

*Sample answer: plane GHL ,
plane GHK*

9. Name three different planes that contain point K .

*Sample answer: plane GHK ,
plane KHL , plane JHK*

10. Name two different planes that contain \overrightarrow{HJ} .

*Sample answer: plane GHJ ,
plane JHK*

- Sketch and label the cube as shown. Ask students to identify segments, intersecting lines, intersecting planes, a line not on a plane, and so on.

