

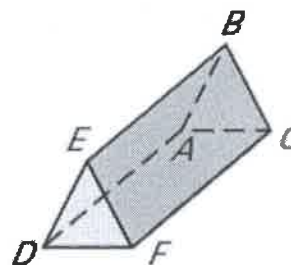


- I can identify relationships in space.
 - ✓ I can identify parallel lines.
 - ✓ I can identify skew lines.
 - ✓ I can identify perpendicular lines.
 - ✓ I can identify parallel planes.

Terms	Description	Examples
Parallel lines Ex: $\ell \parallel m$	Lines that lie in the same plane and do not intersect. Symbol: \parallel	
Perpendicular lines Ex: $k \perp \ell$	Lines that form 90° angles. Symbol: \perp	
Skew lines	Lines that do not lie in the same plane and do not intersect. No symbol \otimes	
Parallel Planes	Planes that do not intersect. Symbol: \parallel	

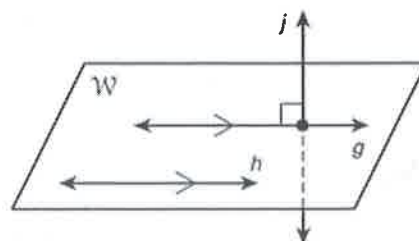
Think of each segment in the diagram as part of a line. Fill in the blank with *parallel*, *skew*, or *perpendicular*.

- \overleftrightarrow{DE} and \overleftrightarrow{CF} are skew lines.
- \overleftrightarrow{AD} , \overleftrightarrow{BE} and \overleftrightarrow{CF} are parallel lines.
- Plane ABC and plane DEF are parallel planes.
- \overleftrightarrow{BE} and \overleftrightarrow{AB} are perpendicular lines.



Use the figure below. Identify each of the following.

- A pair of parallel lines. line g : line h
- A pair of skew lines. line j : line h
- A pair of perpendicular lines. line g : line j



Use the diagram of the fire escape to decide whether the statement is *true* or *false*.

8. The platforms outside of each pair of windows are parallel to the ground.

true



9. The planes containing the stairs are parallel to each other.

true



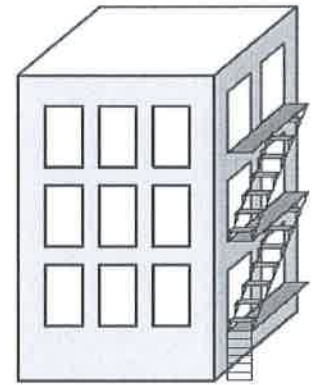
10. The platforms outside of each pair of windows are perpendicular to the planes containing the stairs.

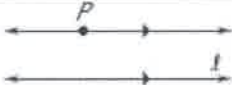
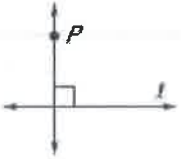
false



11. The platforms outside of each pair of windows are perpendicular to the side of the building.

true



Postulates	Examples
Parallel Postulate If there is a line and a point not on the line, then there is exactly one line through the point parallel to the given line.	 <i>There is exactly one line through P parallel to l</i>
Perpendicular Postulate If there is a line and a point not on the line, then there is exactly one line through the point perpendicular to the given line.	 <i>there is exactly one line through P perpendicular to l</i>

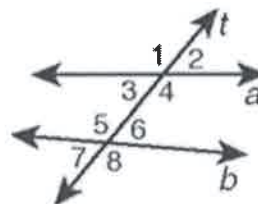


- I can identify angle pairs formed by three intersecting lines.
 - ✓ I can identify corresponding angles.
 - ✓ I can identify alternate interior angles.
 - ✓ I can identify alternate exterior angles.
 - ✓ I can identify consecutive interior angles.

A **transversal** is a line that intersects two lines in a plane at different points.

Eight angles are formed.

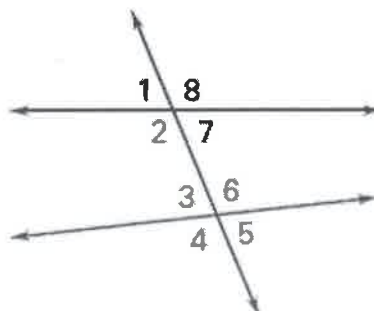
Line t is the transversal of lines a and b .



Angle Pairs Formed by a Transversal		
Angles	Description	Examples
Corresponding	Angles that lie on the same side of the transversal and on the same sides of the two other lines <i>"matching spots"</i>	 $\angle 1 \cong \angle 5$ $\angle 4 \cong \angle 8$
Alternate Interior	Angles that lie on opposite sides of the transversal, between the other two lines	 $\angle 3 \cong \angle 6$ $\angle 4 \cong \angle 5$
Alternate Exterior	Angles that lie on opposite sides of the transversal, outside the other two lines	 $\angle 1 \cong \angle 8$ $\angle 2 \cong \angle 7$
Consecutive Interior (aka Same-side interior)	Angles that lie on the same side of the transversal, between the other two lines	 $\angle 3 \cong \angle 6$ $\angle 4 \cong \angle 5$

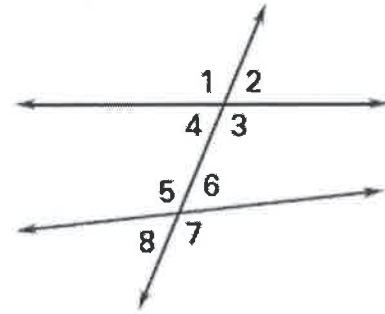
In the diagram to the right, identify all pairs of angles of the given type.

- Corresponding $\angle 1, \angle 3$ and $\angle 2, \angle 4$ and $\angle 8, \angle 6$
and $\angle 7, \angle 5$
- Alternate interior
 $\angle 2, \angle 6$ and $\angle 3, \angle 7$
- Alternate exterior
 $\angle 1, \angle 5$ and $\angle 4, \angle 8$
- Consecutive interior
 $\angle 2, \angle 3$ and $\angle 7, \angle 6$



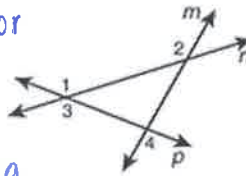
Complete the statement with *corresponding*, *alternate interior*, *alternate exterior*, or *consecutive interior*.

5. $\angle 3$ and $\angle 5$ are alt. interior angles.
6. $\angle 2$ and $\angle 6$ are corresponding angles.
7. $\angle 1$ and $\angle 7$ are alt. exterior angles.
8. $\angle 4$ and $\angle 5$ are consecutive interior angles.



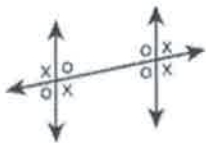
Use the figure below. Identify the transversal and classify each angle pair.

9. $\angle 1$ and $\angle 2$ transversal: n ; consec. interior
10. $\angle 2$ and $\angle 4$ transversal: m ; alt. exterior
11. $\angle 3$ and $\angle 4$ transversal: p ; corresponding



Luke and JoAnne make up a game. For a game board, they draw two lines crossed by a transversal and then they take turns placing Xs and Os in the line angles. Corresponding angles score 10 points, alternate interior angles score 20 points, and alternate exterior angles score 30 points, and consecutive interior angles score 40 points.

12. Tally up the score for X and O in the game board below.



O's: consec interior : 40
 alt. interior : 20
 corresponding : 10
70

X's: alt. exterior : 30
 corresponding : 10
40