Geometry

Name _____

Date _____ Period _____

Chapter 3 Parallel and Perpendicular Lines
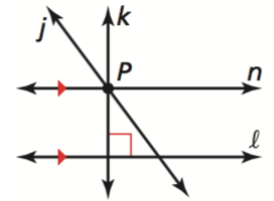
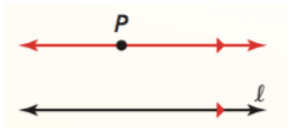## Ch 3.1 - Pairs of Lines and Angles

Vocabulary

Parallel lines: _____

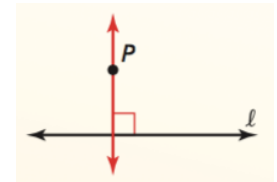Parallel planes: _____

Perpendicular lines: _____

Skew lines: _____

Parallel Postulate	

Perpendicular Postulate	

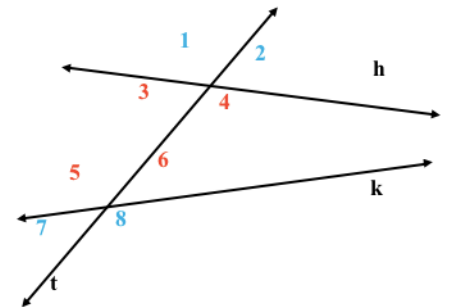**Transversal**: _____

Corresponding angles: Alternate Exterior angles:

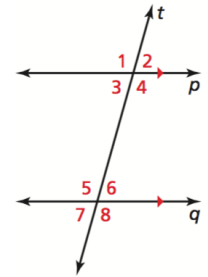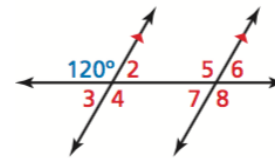Alternate Interior angles: Consecutive Interior angles:

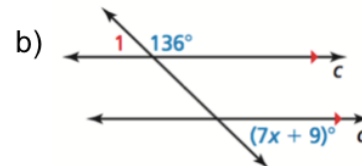Questions:

Ch 3.2 - Parallel Lines and Transversals

Corresponding Angles Theorem	
Alternate Interior Angles Theorem	
Alternate Exterior Angles Theorem	
Consecutive (Same-side) Interior Angles Theorem	

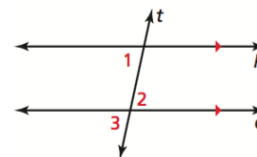1) Determine all the angles using the postulates and theorems we just learned.

2) Determine the value of x.

a)

b)
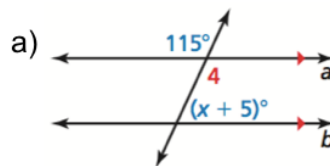
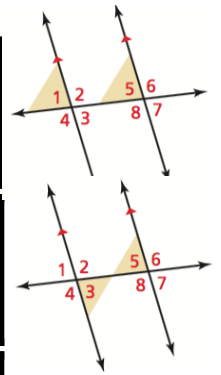**Prove the Alternate Interior Angles Theorem**

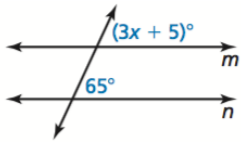**Given** $p \parallel q$

Prove $\angle 1 \cong \angle 2$

Statement   Reason
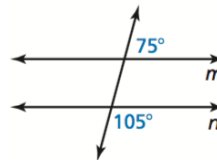
Ch 3.3 - Proofs with Parallel Lines

|	
Converse of the Corresponding Angles Theorem	
Converse of the Alternate Interior Angles Theorem	
Converse of the Alternate Exterior Angles Theorem	
Converse of the Consecutive (Same-side) Interior Angles Theorem	

1) Compute the value of x that makes m || n.

$(3x + 5)°$
m
$65°$
n

2) Is there enough evidence to conclude that m || n?

$75°$
m
$105°$
n

Determine Whether Lines Are Parallel

Given: $r \parallel s$ and $\angle 1 \cong \angle 3$
Prove: $p \parallel q$

r s
3
p
2 1
q
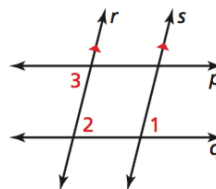
Statement   Reason
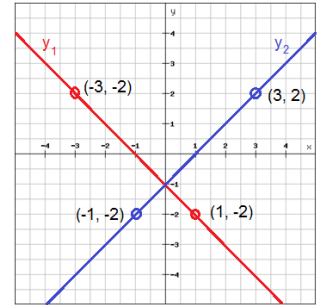
Transitive Property of Parallel Lines Theorem	

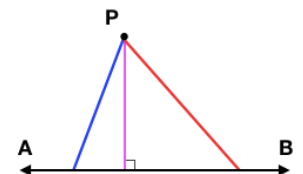## Ch 3.4 - Proofs with Perpendicular Lines
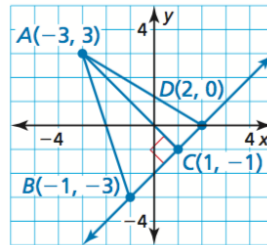
Perpendicular lines: _____

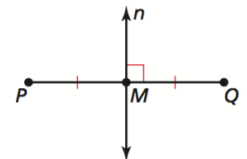How do you determine if two lines in a coordinate plane are perpendicular?
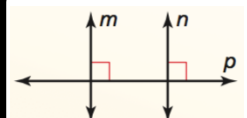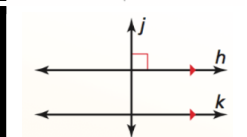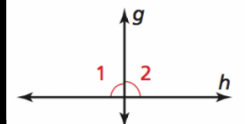
The distance from a point to a line is _____

_____

Solve for the distance of Point A to Line BD.

Perpendicular bisector: _____

_____

Linear Pair Perpendicular Theorem	
Perpendicular Transversal Theorem	
Lines Perpendicular to a Transversal Theorem	

Ch 3.5 - Equations of Parallel and Perpendicular Lines
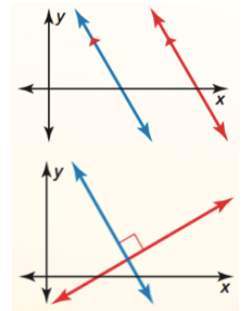
Directed Line Segment: _____

_____

Using the diagram to the right, determine the coordinates of point P along segment AB such that AP to PB is 3 to 2.
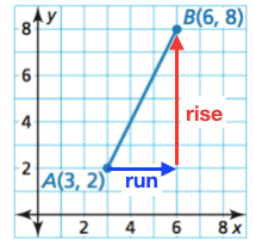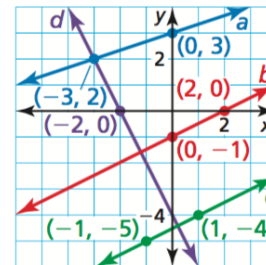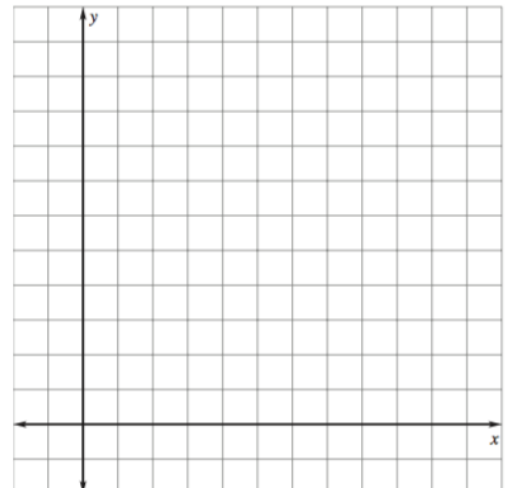
Slope of a Line

Parallel lines: _____

Perpendicular lines: _____

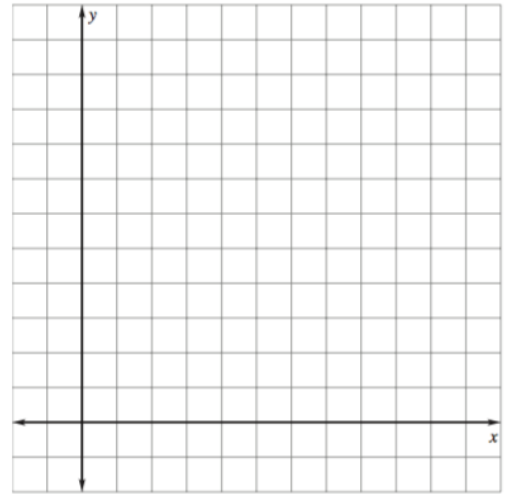Determine which of the lines are parallel and which of the lines are perpendicular.

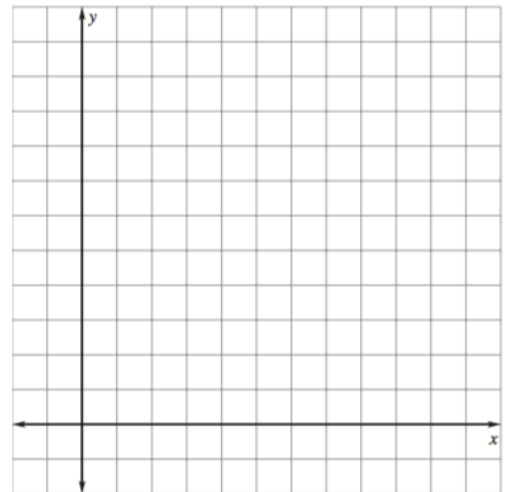1. Write an equation of the line passing through the point (-1, 1) that is parallel to the line y = 2x - 3.

2. Write an equation of the line passing through the point (2, 3) that is perpendicular to the line 2x + y = 2.

3. Find the distance from the point (1, 0) to the line y = -x + 3.

4. Find the distance from the point (6, 4) to the line y = x + 4.