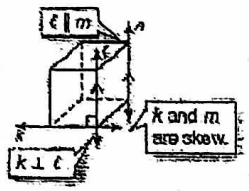
Chapter 3: Vocabulary, Theorems and Postulates

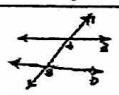
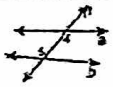
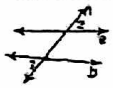
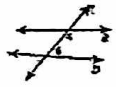
and notes

Directions: Use your textbook to complete the following. Do not expect the answer to jump off the page or use the exact same wording that is on this paper. You just may have to READ the information and interpret it! Keep this page handy as it will be an invaluable resource for the final.

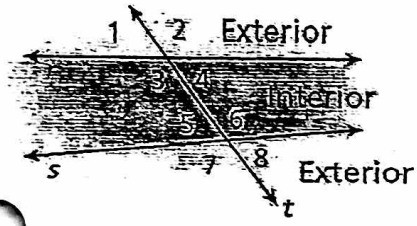
Geometry

Lesson 3-1: Lines and Angles

Lines	Description	Examples
parallel	lines that lie in the same plane and do not intersect symbol: ∥	
perpendicular	lines that form 90° angles symbol: ⊥	
skew	lines that do not lie in the same plane and do not intersect	

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 other two lines	
alternate interior	angles that lie on opposite sides of the transversal, between the other two lines	
alternate exterior	angles that lie on opposite sides of the transversal, outside the other two lines	
same-side interior (also consecutive interior angles)	angles that lie on the same side of the transversal, between the other two lines; also called *consecutive interior angles*	

Use the diagram below to identify each of the following:



Corresponding angles: _____

Alternate Interior Angles: _____

Alternate Exterior Angles: _____

Same-side Interior Angles: _____
(Consecutive Interior Angles)

Lesson 3-2: Angles Formed by Parallel Lines and Transversals

When lines are parallel, there are several pairs of angles that are ≅ using the theorems below:

- ∥ (If lines are parallel) → _____.
- ∥ (If lines are parallel) → _____.
- ∥ (If lines are parallel) → _____.
- ∥ (If lines are parallel) → _____.

Lesson 3-3: Proving Lines Parallel

When certain pairs of angles are congruent or supplementary, then lines can be proven parallel...

- (If) _____ → ∥
- (If) _____ → ∥
- (If) _____ → ∥
- (If) _____ → ∥

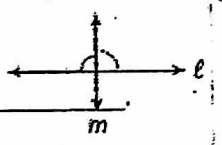
*NOTE: How are the theorems in Lesson 3-3 related to the theorems in Lesson 3-2?

Transitive Property of Parallel Lines: _____
(only in Big Ideas Text p. 141)

Lesson 3-4: Perpendicular Lines

1. The _____ from a point to a line is the length of the perpendicular segment from the point to the line.

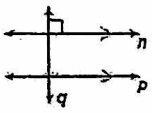
2. The _____ of a segment is a line perpendicular to a segment at the segments midpoint.



3. **THEOREM:** If two lines intersect to form a _____ of congruent angles, then the lines are _____.

abbreviated thm name:

$\ell \perp m$

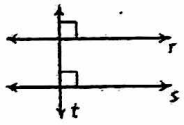


4. **THEOREM:** If a transversal is _____ to one of two parallel lines, then it is _____ to the other line.

$q \perp p$

abbreviated thm name:

5. **THEOREM:** If two lines are _____ to the _____, then the two lines are _____ to each other.



abbreviated thm name:

$r \parallel s$

Lesson 3-5: Slopes of Lines

Slope formula (remember from algebra 1): _____

**Whenever you use the slope formula don't forget to write it down as your first step!

In the table, draw a line that represents each situation.

Summary: Slope of a Line			
Positive Slope	Negative Slope	Zero Slope	Undefined Slope

THEOREM: Two non-vertical lines are parallel iff they have the _____.

Remember: Any two vertical lines are parallel and any two horizontal lines are parallel.

THEOREM: Two non-vertical lines are perpendicular iff the product of their slopes is _____.

Remember: Vertical and horizontal lines are perpendicular.

The slope of a vertical line is _____. The slope of a horizontal line is _____.

Equations of Lines:

Point Slope Form: _____ Standard Form: _____

Slope Intercept Form: _____

Vertical Line: _____ Horizontal Line: _____

Parallel lines have the _____ slope and _____ y-intercept.

Intersecting lines have _____ slope.

Coinciding lines have _____ slope and _____ y-intercept.

iff = if and only if