CHAPTER 3 STUDY GUIDE

3.1

Parallel: two lines that do not intersect and are coplanar.

Perpendicular: two lines that intersect to form a right angle

Skew: lines that don not intersect and are not coplanar.

3.2

Angles:

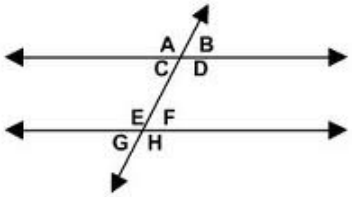
corresponding: two angles that are formed by to lines and a transversal and occupy corresponding positions.

alternate interior: two angles that are formed by two lines and a transversal and lie between the two lines and on opposite sides of the transversal.

alternate exterior: two angles that are formed by two lines and a transversal and lie outside the two lines and on opposite sides of the transversal.

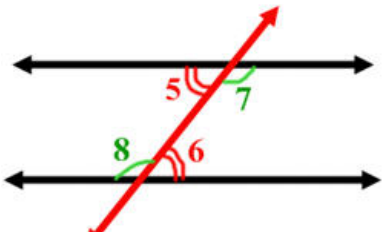
same side interior (consecutive interior): two angles that are formed by two lines and a transversal and lie between the two lines and on the same side of the transversal.

|| → corr ∠ ≅
|| → AI ∠ ≅
|| → AE ∠ ≅
|| → SSI ∠ supp



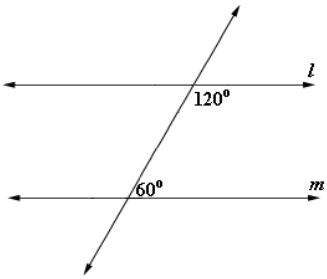
These pairs of angles are corresponding angles:

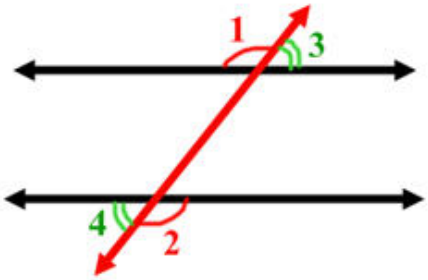
∠A and ∠E
∠C and ∠G
∠B and ∠F
∠D and ∠H



3.3

corr ∠ ≅ → ||
AI ∠ ≅ → ||
AE ∠ ≅ → ||
SSI ∠ supp → ||



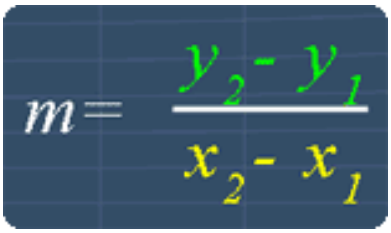


3.4

finding slope

m= rYse
Run

$m = \frac{y_2 - y_1}{x_2 - x_1}$



3.5

slope intercept form: a linear equation written in the form $y=mx+b$ where m is the slope and b is the y-intercept of the equation's graph.

standard form: a linear equation written in the form $Ax + By = C$, where $A,B,$ and C are real numbers and A and B are not both zero.

parallel & perpendicular slope relationships

Slopes of Parallel Lines: In a coordinate plane, two nonvertical lines are parallel if and only if they have the same slope. Any two vertical lines are parallel.

*Slopes of Perpendicular Lines***:** In a coordinate plane, two nonvertical lines are perpendicular if and only if the product of their slopes is -1. Horizontal lines are perpendicular to verticle lines.

3.6

parallel and perpendicular rules/theorems:

Theorem 3.8: If two lines intersect to form a linear pair of congruent angles, then the lines are perpendicular.

Theorem 3.9: If two lines are perpendicular, then they intersect to form four right angles.

Theorem 3.10: If two sides of two adjacent acute angles are perpendicular, then the angles are complementary.

Theorem 3.11 Perpendicular Transversal Theorem: If a transversal is perpendicular to one of two lines, then it is perpendicular to the other.

Theorem 3.12 Lines Perpendicular to a Transversal Theorem: In a plane, if two lines are perpendicular to the same line, then they are parallel to each other.

Find distance from point A to point C

1. Slope
2. Perpendicular slope
3. Intersecting point
   -Start at point A
   -Use perpendicular slope until intercept line
4. Distance formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$