Geometry Chapter 3 Study Guide

3.1 Parallel – Don't intersect and are coplanar
Perpendicular – Intersect to form a right angle
Skew – Don't intersect and are not coplanar.

3.2 angles: cut by a transversal
corresponding – corresponding positions
alternate interior – lie between the two lines on opposite sides of the transversal
alternate exterior – lie outside the two and on opposite side of the transversal
same side interior (consecutive interior) – lie between the two lines and on the same side of the transversal

PCA → Corresponding Angles Postulate
PAI → Alternate Interior Angles Theorem
PAE → Alternate Exterior Angles Theorem
SSI → Consecutive Interior (Same Side) Angles Theorem

3.3 CAP → Corresponding Angles Converse
AIP → Alternate Interior Angles Converse
AEP → Alternate Exterior Angles Converse
SSIP → Consecutive Interior (Same Side) Angles Converse
Transitive Property of Parallel Lines – If two lines are parallel to the same line, they are parallel to each other.

3.4 slope – the ratio of vertical change (*rise*) to horizontal change (*run*) between any two points on the line.

3.5 slope intercept form: $y = mx + b$
Slope = m Y-intercept = b
standard form: $Ax + By = C$
A and B aren't 0.
parallel, perpendicular slope relationships
Parallel – Same slope
Perpendicular – Opposite Reciprocal slopes
(horizontal is parallel to vertical)

3.6 parallel and perpendicular rules/theorems -

Theorem 3.11 Perpendicular Transversal Theorem: If a transversal is perpendicular to one of two parallel 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.