

- 7-3 (Triangle Proportionality Theorem)** If a line parallel to one side of a triangle intersects the other two sides, then it divides those sides proportionally. (p. 269)
- Corollary** If three parallel lines intersect two transversals, then they divide the transversals proportionally. (p. 270)
- 7-4 (Triangle Angle-Bisector Theorem)** If a ray bisects an angle of a triangle, then it divides the opposite side into segments proportional to the other two sides. (p. 270)

Right Triangles

- 8-1** If the altitude is drawn to the hypotenuse of a right triangle, then the two triangles formed are similar to the original triangle and to each other. (p. 285)
- Corollary 1** When the altitude is drawn to the hypotenuse of a right triangle, the length of the altitude is the geometric mean between the segments of the hypotenuse. (p. 286)
- Corollary 2** When the altitude is drawn to the hypotenuse of a right triangle, each leg is the geometric mean between the hypotenuse and the segment of the hypotenuse that is adjacent to that leg. (p. 286)
- 8-2 (Pythagorean Theorem)** In a right triangle, the square of the hypotenuse is equal to the sum of the squares of the legs. (p. 290)
- 8-3** If the square of one side of a triangle is equal to the sum of the squares of the other two sides, then the triangle is a right triangle. (p. 295)
- 8-4** If the square of the longest side of a triangle is less than the sum of the squares of the other two sides, then the triangle is an acute triangle. (p. 296)
- 8-5** If the square of the longest side of a triangle is greater than the sum of the squares of the other two sides, then the triangle is an obtuse triangle. (p. 296)
- 8-6 (45°-45°-90° Theorem)** In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{2}$ times as long as a leg. (p. 300)
- 8-7 (30°-60°-90° Theorem)** In a 30°-60°-90° triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is $\sqrt{3}$ times as long as the shorter leg. (p. 300)

Circles

- 9-1** If a line is tangent to a circle, then the line is perpendicular to the radius drawn to the point of tangency. (p. 333)
- Corollary** Tangents to a circle from a point are congruent. (p. 333)
- 9-2** If a line in the plane of a circle is perpendicular to a radius at its outer endpoint, then the line is tangent to the circle. (p. 333)
- 9-3** In the same circle or in congruent circles, two minor arcs are congruent if and only if their central angles are congruent. (p. 340)
- 9-4** In the same circle or in congruent circles,
(1) congruent arcs have congruent chords.
(2) congruent chords have congruent arcs. (p. 344)
- 9-5** A diameter that is perpendicular to a chord bisects the chord and its arc. (p. 344)