Flash Cards: Properties of Secants and Tangents

Directions: Answer the following.

1. Find the length of AB in the figure below. The figure is a circle with external point A and points B and C on the circle.
AB and AC are both tangent.
AC = 7 in.

2. Find the value of x in the figure below. The figure is a circle with external point A and points B and C on the circle.
AB and AC are both tangent.
AC = 5x + 2
AB = 3x + 16

3. Find the value of x in the figure below. The figure is a circle with external point A, points B, C and D on the circle, tangent line AB and secant line from A, through C and D.
AB is tangent.
AB = 12
AC = 10
CD = x

4. Find the length of AC in circle C below. The figure is a circle with center point C, external point A, point B on the circle, and segments AC and AB.
AB is tangent.
AB = 15
BC = 5

5. Find the value of x in the figure below. The figure is a circle with external point A, points B, C and D on the circle, tangent line AB and secant line from A, through C and D.
AB is tangent.
AB = x
AC = 3
CD = 9

Answers:

1. AB = 7 in.

2. AC = AB
5x + 2 = 3x + 16
5x = 3x + 14
2x = 14
x = 7

3. 10(10 + x) = 12(12 + 0)
100 + 10x = 144
10x = 44
x = 4.4

4. AB is perpendicular to BC, so a right triangle is made.
$AB^2 + BC^2 = AC^2$
$15^2 + 5^2 = AC^2$
$225 + 25 = AC^2$
$250 = AC^2$
$15.81 \approx AC$

5. $3(3 + 9) = x(x + 0)$
$3(12) = x^2$
$36 = x^2$
$6 = x$