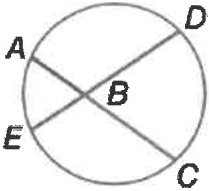
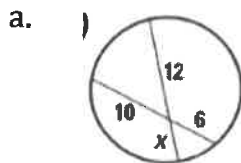


<p>Segments of Chord Theorem</p>	<p>If two chords intersect in a circle, then the products of the lengths of the chord segments are equal.</p>	 <p><math>AB \cdot BC = DB \cdot BE</math></p>
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1. Find the value of x.

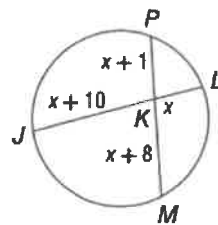


$$10(6) = x(12)$$

$$60 = 12x$$

$$\boxed{5 = x}$$

c.

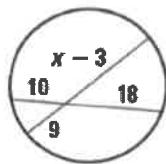


$$x(x+10) = (x+1)(x+8)$$

$$x^2 + 10x = x^2 + 9x + 8$$

$$\boxed{x = 8}$$

b.



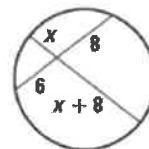
$$9(x-3) = 10(18)$$

$$9x - 27 = 180$$

$$9x = 207$$

$$\boxed{x = 23}$$

d.



$$x(x+8) = 8(6)$$

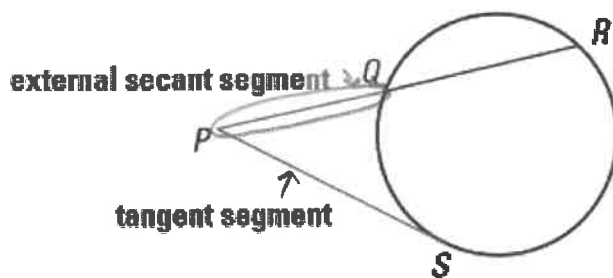
$$x^2 + 8x = 48$$

$$x^2 + 8x - 48 = 0$$

$$(x+12)(x-4) = 0$$

$$x = -12, 4$$

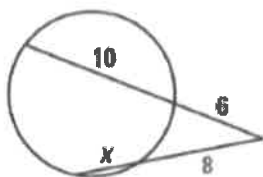
$$\boxed{x = 4}$$



<p>Theorem 10.16</p>	<p>If two secant intersect in the exterior of the circle, then the product of the measure of one secant segment and its external secant segment is equal to the product of the measures of the other secant and its external secant segment.</p>	
<p>Theorem 10.17</p>	<p>If a tangent and a secant segment intersect in the exterior of the circle, then the square of the measure of the tangent is equal to the product of the measures of the secant segment and its external secant segment.</p>	

2. Find the value of  $x$ :

a.



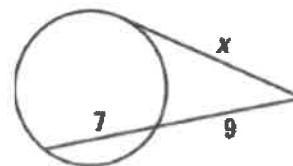
$$6(16) = 8(x+8)$$

$$96 = 8x + 64$$

$$32 = 8x$$

$$4 = x$$

b.

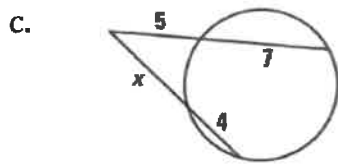


$$x^2 = 9(16)$$

$$x^2 = 144$$

$$x = 12$$

10.7 Special Segments in a Circle



$$5(12) = x(x+4)$$

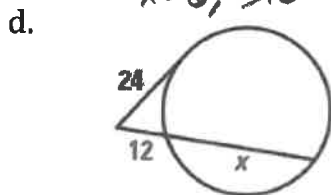
$$60 = x^2 + 4x$$

$$0 = x^2 + 4x - 60$$

$$0 = (x-6)(x+10)$$

$$x=6, -10$$

$$x=6$$

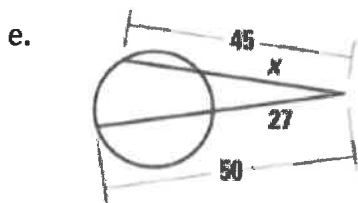


$$24^2 = 12(12+x)$$

$$576 = 144 + 12x$$

$$432 = 12x$$

$$36 = x$$

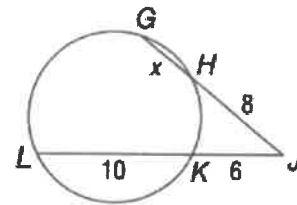


$$x(45) = 27(50)$$

$$45x = 1350$$

$$x = 30$$

f.



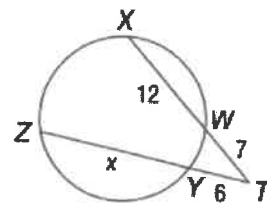
$$8(8+x) = 6(16)$$

$$64 + 8x = 96$$

$$8x = 32$$

$$x = 4$$

g.



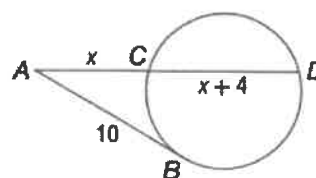
$$7(19) = 6(6+x)$$

$$133 = 36 + 6x$$

$$97 = 6x$$

$$97/6 = x$$

h.



$$x(x+x+4) = 10^2$$

$$2x^2 + 4x = 100$$

$$x^2 + 2x - 50 = 0$$

$$x = \frac{-2 \pm \sqrt{204}}{2}$$

$$(x- ) (x+ ) = 0$$

$$x = 6.1, -8.1$$

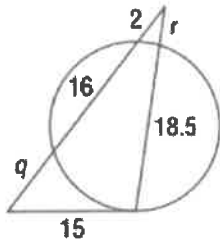
$$x = \frac{-2 \pm \sqrt{2^2 - 4(1)(-50)}}{2(1)}$$

$$x \approx 6.1$$

\*doesn't factor

Geometry CP  
10.7 Special Segments in a Circle

i.



$$q(16+q) = 15^2$$

$$16q + q^2 = 225$$

$$q^2 + 16q - 225 = 0$$

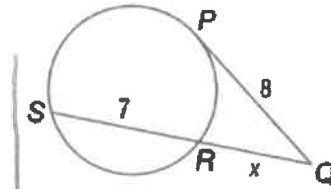
$$q = \frac{-16 \pm \sqrt{16^2 - 4(1)(-225)}}{2(1)}$$

$$= \frac{-16 \pm \sqrt{1156}}{2}$$

$$= \frac{-16 \pm 34}{2} = 9, -25$$

$$\boxed{q = 9}$$

j.



$$2(16) = r(r+18.5)$$

$$32 = r^2 + 18.5r$$

$$0 = r^2 + 18.5r - 32$$

$$r = \frac{-18.5 \pm \sqrt{(18.5)^2 - 4(1)(-32)}}{2(1)}$$

$$= \frac{-18.5 \pm \sqrt{470.25}}{2}$$

$$= 1.6, -20.1$$

$$\boxed{r = 1.6}$$

$$8^2 = x(x+7)$$

$$64 = x^2 + 7x$$

$$0 = x^2 + 7x - 64$$

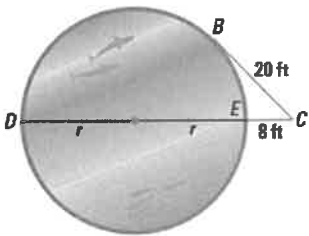
$$x = \frac{-7 \pm \sqrt{7^2 - 4(1)(-64)}}{2(1)}$$

$$= \frac{-7 \pm \sqrt{305}}{2}$$

$$\approx 5.2, -12.2$$

$$\boxed{x = 5.2}$$

3. You are standing at point C, about 8 feet from a circular aquarium tank. The distance from you to a point of tangency on the tank is about 20 feet. Estimate the radius of the tank.



$$20^2 = 8(8+2r)$$

$$400 = 64 + 16r$$

$$336 = 16r$$

$$\boxed{21 = r}$$