Geometry Ch 10-6 Exer., pg 684 #1-11, 13-18

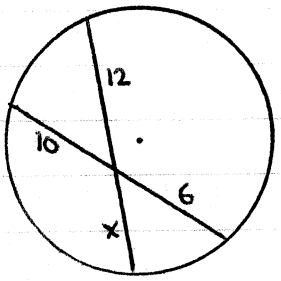
1. The part of the secant segment that is outside the circle is called the <u>external segment</u>.

2. Explain the difference between a tangent segment and a secant segment.

The tangent segment intersects a circle at a single point, while the secant segment intersects the circle at two points.

Find the value of x.

3.

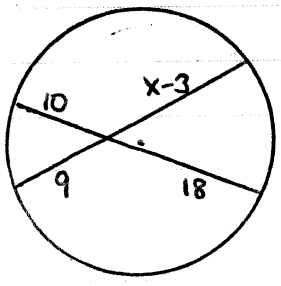


$(10)(6) = (12)(x)$

$60 = 12x$

$\boxed{5 = x}$

4.



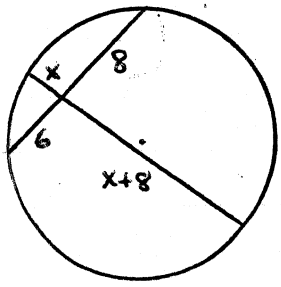
$(10)(18) = (9)(x-3)$

$180 = 9x - 27$

$207 = 9x$

$\boxed{23 = x}$

5.



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

$48 = x^2 + 8x$

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

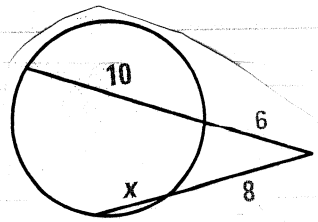
$0 = (x+12)(x-4)$

$\cancel{x = -12}$ and $x = 4$

Remember: We only consider positive measures of length.

Find the value of x.

6.



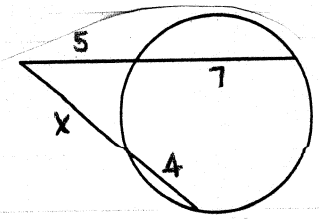
$6(10+6) = 8(x+8)$

$96 = 8x + 64$

$32 = 8x$

$\boxed{4 = x}$

7.



$5(5+7) = x(x+4)$

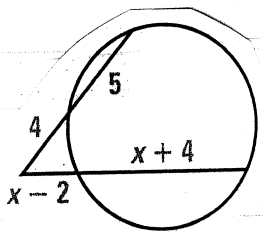
$60 = x^2 + 4x$

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

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

$\cancel{x = -10}$; $\boxed{x = 6}$

8.



$4(4+5) = (x-2)[(x-2)+(x+4)]$

$36 = (x-2)(2x+2)$

$36 = 2x^2 + 2x - 4x - 4$

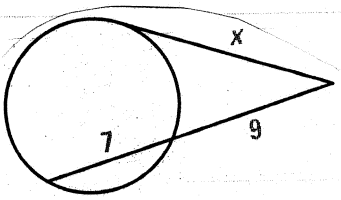
$0 = 2x^2 - 2x - 40$

$0 = x^2 - x - 20$

$0 = (x-5)(x+4)$

$\boxed{x = 5;}$ $\cancel{x = -4}$

9.

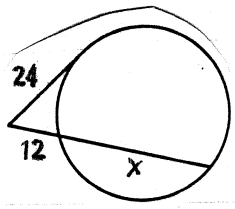


$x^2 = 9(9+7)$

$x^2 = 144$

$\boxed{x = 12;}$ $\cancel{x = -12}$

10.



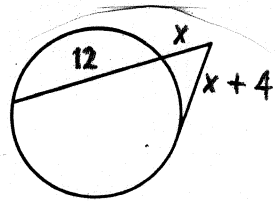
$(24)^2 = 12(12+x)$

$576 = 144 + 12x$

$432 = 12x$

$\boxed{36 = x}$

11.



$x(x+12) = (x+4)^2$

$x^2 + 12x = x^2 + 8x + 16$

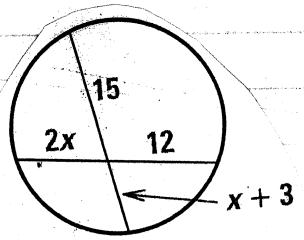
$12x = 8x + 16$

$4x = 16$

$\boxed{x = 4}$

Find the value of x; rounding to the nearest tenth.

13.



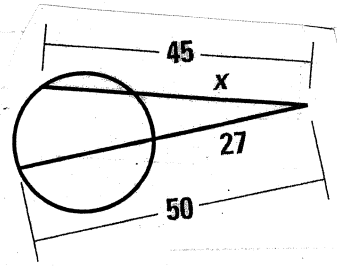
$15(x+3) = 2x(12)$

$15x + 45 = 24x$

$45 = 9x$

$\boxed{5 = x}$

14.

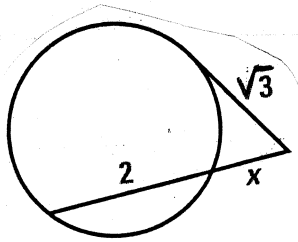


$x(45) = 27(50)$

$45x = 1350$

$x = 30$

15.



$(\sqrt{3})^2 = x(x+2)$

$3 = x^2 + 2x$

$0 = x^2 + 2x - 3$

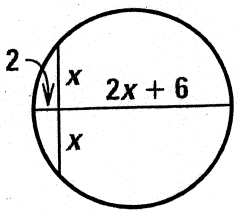
$0 = (x+3)(x-1)$

$\cancel{x = -3}$; $\boxed{x = 1}$

16. ★ **MULTIPLE CHOICE** Which of the following is a possible value of x?

Ⓐ −2 Ⓑ 4

Ⓒ 5 Ⓓ 6



$2(2x+6) = (x)(x)$

$4x + 12 = x^2$

$0 = x^2 - 4x - 12$

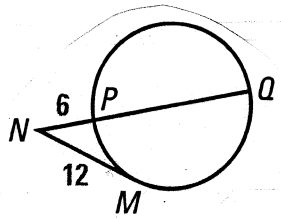
$0 = (x-6)(x+2)$

$\boxed{x=6}$; $x=-2$

$x=-2$ is a solution to the equation. However, we only consider positive measures of length.

Find PQ. Round answers to the nearest tenth.

17.



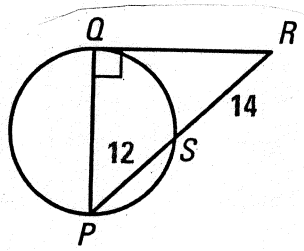
$(12)^2 = 6(6 + PQ)$

$144 = 36 + 6(PQ)$

$108 = 6(PQ)$

$\boxed{18 = PQ}$

18.



$(QR)^2 = 14(14+12)$

$(QR)^2 = 364$

$QR = \sqrt{364}$

Pyth Thm: $(QP)^2 + (QR)^2 = (PR)^2$

$(QP)^2 + (\sqrt{364})^2 = (26)^2$

$(QP)^2 + 364 = 676$

$(QP)^2 = 312$

$QP = \sqrt{312}$

$\boxed{QP = 17.7}$