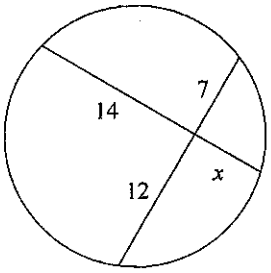
Geometry Name Key ID: 1

Unit 9b Test Review

Date _____ Period ____

Solve for x. Assume that lines which appear tangent are tangent.

1)



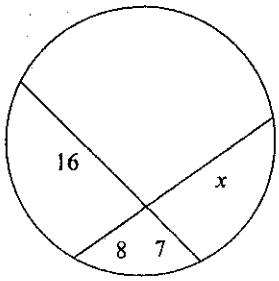
Part·part = part·part

$14x = 84$

$\frac{14}{14} \quad \frac{84}{14}$

$x = 6$

2)

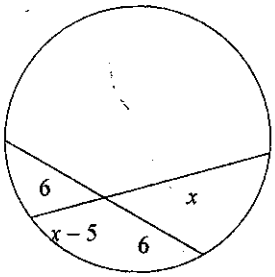


$16 \cdot 7 = 8 \cdot x$

$\frac{112}{8} = \frac{8x}{8}$

$x = 14$

3)



$6 \cdot 6 = x(x-5)$

$36 = x^2 - 5x$

$-36 \quad -36$

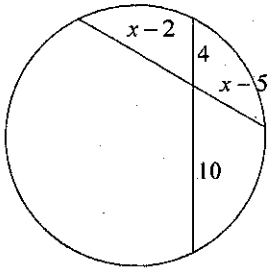
$0 = x^2 - 5x - 36$

$0 = (x-9)(x+4)$

$x = 9 \quad x = -4$

$-9 \quad -36 \quad 4 \quad -5$

4)



$(x-2)(x-5) = 4 \cdot 10$

$x^2 - 2x - 5x + 10 = 40$

$x^2 - 7x + 10 = 40$

$-40 \quad -40$

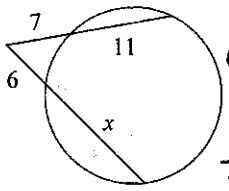
$x^2 - 7x - 30 = 0$

$(x-10)(x+3) = 0$

$x = 10 \quad x = -3$

$-10 \quad -30 \quad 3 \quad -7$

5)



outside · whole = outside · whole

$7(7+11) = 6(6+x)$

$7(18) = 6(6+x)$

$126 = 36 + 6x$

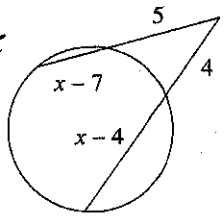
$-36 \quad -36$

$90 = 6x$

$\frac{90}{6} = \frac{6x}{6}$

$x = 15$

6)



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

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

$-10 + 5x = 4x$

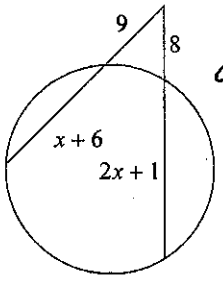
$-5x \quad -5x$

$-10 = -x$

$\frac{-10}{-1} = \frac{-x}{-1}$

$x = 10$

7)



$9(9+x+6) = 8(8+2x+1)$

$9(15+x) = 8(9+2x)$

$135 + 9x = 72 + 16x$

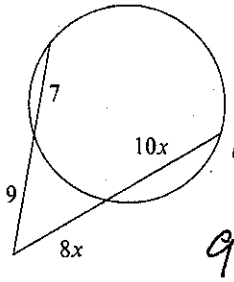
$-72 \quad -9x \quad -72 \quad -9x$

$63 = 7x$

$\frac{63}{7} = \frac{7x}{7}$

$x = 9$

8)



$9(9+7) = 8x(8x+10x)$

$9(16) = 8x(18x)$

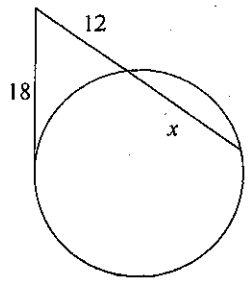
$\frac{144}{144} = \frac{144x^2}{144}$

$\sqrt{1} = \sqrt{x^2}$

$x = \pm 1$

$x = 1$

9)



$\tan^2 = \text{outside} \cdot \text{whole}$

$18^2 = 12(12+x)$

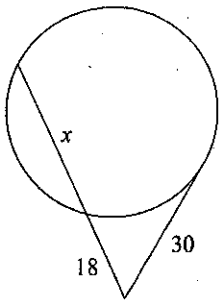
$324 = 144 + 12x$

$-144 \quad -144$

$\frac{180}{12} = \frac{12x}{12}$

$15 = x$

10)



$30^2 = 18(18+x)$

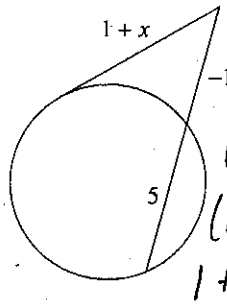
$900 = 324 + 18x$

$-324 \quad -324$

$\frac{576}{18} = \frac{18x}{18}$

$32 = x$

★ 11)



$(1+x)^2 = (-1+x)(-1+x+5)$

$(1+x)(1+x) = (-1+x)(x+4)$

$1 + x + x + x^2 = -x - 4 + x^2 + 4x$

$1 + 2x + x^2 = x^2 + 3x - 4$

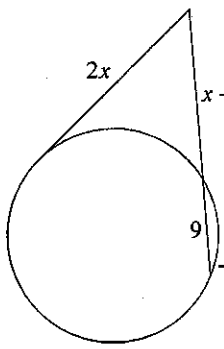
$-x^2 \quad -x^2$

$\frac{1+2x}{-2x} = \frac{3x-4}{-2x}$

$\frac{1}{+4} = \frac{x-4}{+4}$

$x = 5$

★ 12)



$(2x)^2 = (x+6)(x+6+9)$

↑ Careful! $(x+6)(x+15)$

$4x^2 = x^2 + 6x + 15x + 90$

$4x^2 = x^2 + 21x + 90$

$-4x^2 \quad -4x^2$

$0 = -3x^2 + 21x + 90$ GCF

$0 = -3(x^2 - 7x - 30)$

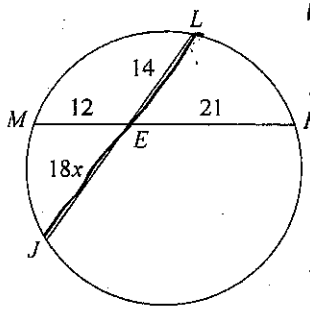
$-10 \times 3 = -30$, $-10 + 3 = -7$

$0 = -3(x-10)(x+3)$

$x = 10$ $\quad x = -3$

Find the measure of the line segment indicated. Assume that lines which appear tangent are tangent.

13) Find LJ



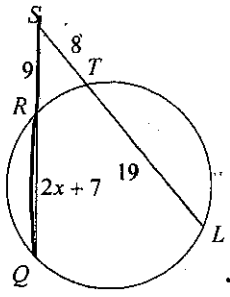
$14 \cdot 18x = 12 \cdot 21$

$\frac{252x}{252} = \frac{252}{252}$

$x = 1$

$LJ = 14 + 18 = 32$

14) Find QS



$8(8+19) = 9(9+2x+7)$

$8(27) = 9(16+2x)$

$216 = 144 + 18x$

$-144 \quad -144$

$\frac{72}{18} = \frac{18x}{18}$

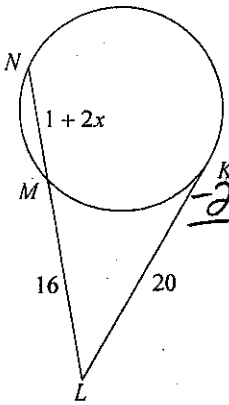
$x = 4$

$\overline{RQ} = 2(4) + 7 = 15$

$\overline{SR} = 9$

$\overline{QS} = 24$

15) Find MN



$20^2 = 16(16+1+2x)$

$400 = 16(17+2x)$

$400 = 272 + 32x$

$-272 \quad -272$

$\frac{128}{32} = \frac{32x}{32}$

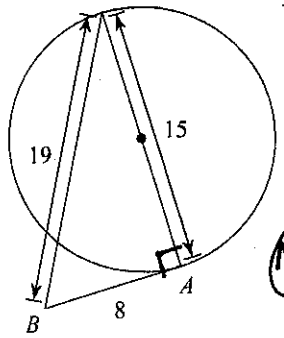
$x = 4$

$\overline{MN} = 1 + 2x$

$= 1 + 2(4) = 9$

Determine if line AB is tangent to the circle.

16) If tangent, Pythagorean works

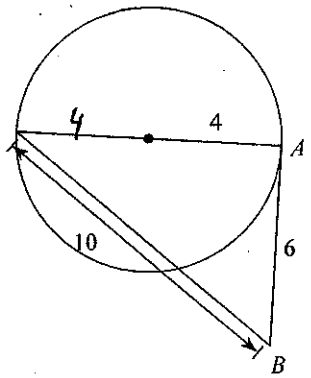


$8^2+15^2=19^2$?

$289 \neq 361$

NO

17)



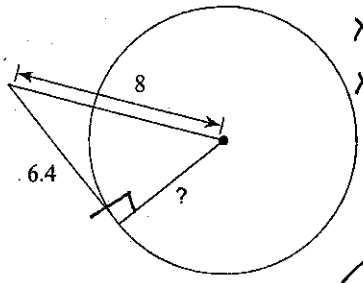
$8^2+6^2=10^2$?

$100=100$ ✓

Yes

Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

18)



$x^2+6.4^2=8^2$

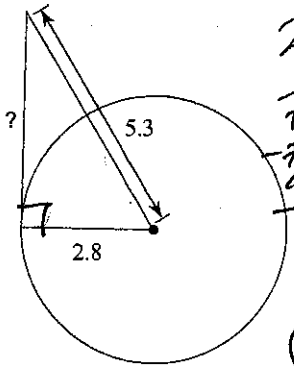
$x^2+40.96=64$

$-40.96 \quad -40.96$

$\sqrt{x^2}=\sqrt{23.04}$

$x=4.8$

19)



$2.8^2+x^2=5.3^2$

$7.84+x^2=28.09$

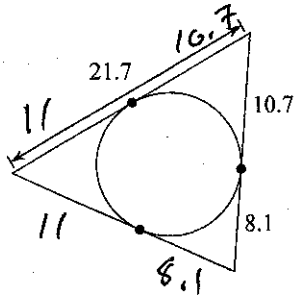
$-7.84 \quad -7.84$

$\sqrt{x^2}=\sqrt{20.25}$

$x=4.5$

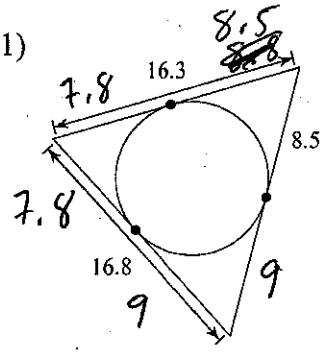
Find the perimeter of each polygon. Assume that lines which appear to be tangent are tangent.

20)



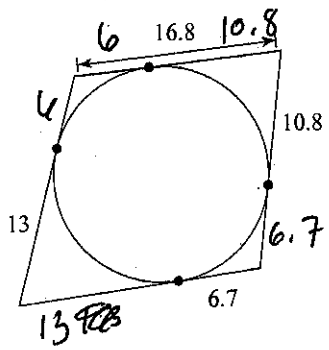
59.6

21)



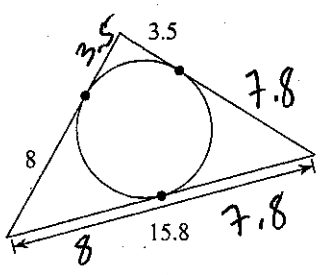
50.6

22)



73

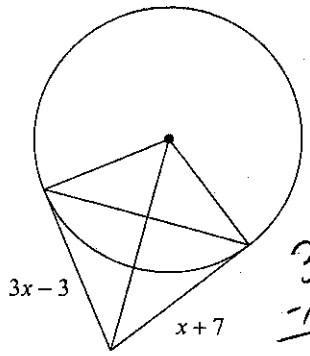
23)



38.6

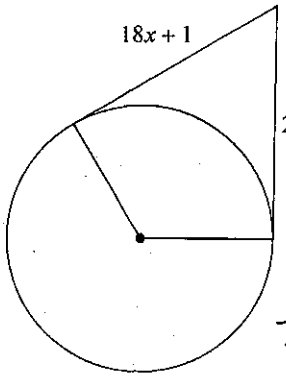
Solve for x. Assume that lines which appear to be tangent are tangent.

24)



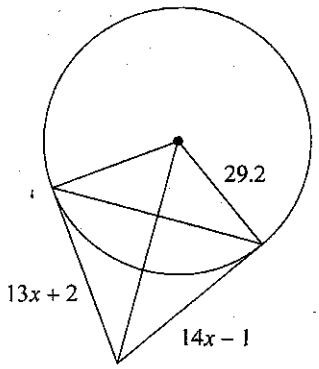
$3x-3=x+7$
$-x \quad -x$
$2x-3=7$
$+3 \quad +3$
$\frac{2x}{2}=\frac{10}{2}$
$x=5$

25)



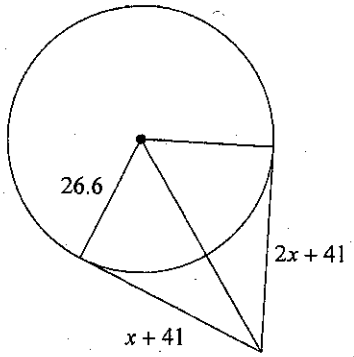
$18x+1=20x-1$
$-18x \quad -18x$
$1=2x-1$
$+1 \quad +1$
$\frac{2}{2}=\frac{2x}{2}$
$x=1$

26)



$13x+2=14x-1$
$-13x \quad -13x$
$2=x-1$
$+1 \quad +1$
$x=3$

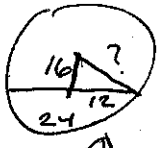
27)



$x+41=2x+41$
$-x \quad -x$
$41=x+41$
$-41 \quad -41$
$x=0$

28) A 24 inch chord is 16 inches from the center. What is the radius of the circle?

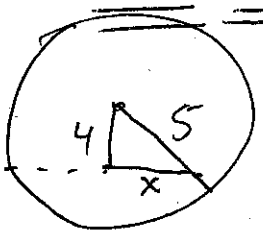
Radius is always hypotenuse



Chord by ½

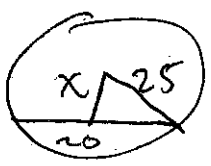
$16^2+12^2=x^2$
$\sqrt{400}=\sqrt{x^2}$
$x=20$ in

29) A circle with radius 5 inches is 4 inches from the center of the circle. What is the length of the ENTIRE CHORD?



$x^2+4^2=5^2$
$x^2+16=25$
$\sqrt{x^2}=\sqrt{9}$
$x=3$ (double your answer)
whole cord = 6 in

30) A 20 inch chord is drawn in a circle with radius length 25 inches. What is the distance from the center of the circle?



$x^2+10^2=25^2$
$x^2+100=625$
$-100 \quad -100$
$x^2=525$
$x=5\sqrt{21}$ in
or
22.91 in