1.

The spokes of a bicycle wheel form 10 congruent central angles. The diameter of the circle formed by the outer edge of the wheel is 18 inches. What is the length, to the nearest 0.1 inch, of the outer edge of the wheel between two consecutive spokes?

A. 1.8 inches
B. 5.7 inches
C. 11.3 inches
D. 25.4 inches

$$\frac{2\pi(9)(36)}{360°}$$

$$\frac{360}{10} = 36$$

$$\frac{2\pi 9}{10} = 5.7$$

2.

Segment Lengths in Circles

Two chords intersect <u>inside</u> the circle

$(\underline{part})(\underline{part}) = (\underline{part})(\underline{part})$

Go down the chord and <u>multiply</u>

3.

Examples:

$6(x) = 9(2)$ $3(2) = 6(x)$ $12(2) = 3(x)$
$6x = 18$ $6 = 6x$ $24 = 3x$
$x = 3$ $1 = x$ $8 = x$
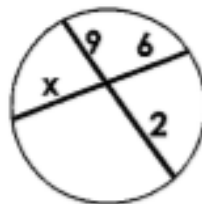
4.
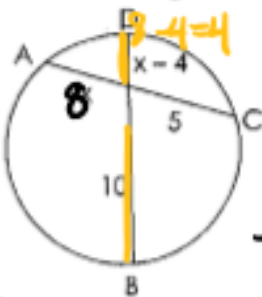
You try. Solve for x.

$$6x = 9(2)$$

$$x = 3$$

5.

Find the length of $\overline{AC}$ and $\overline{DB}$.

$9 - 4 = 4$

$$5(x) = 10(x-4)$$

$$5x = 10x - 40$$

$$-5x = -40$$
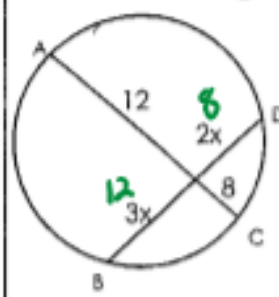
$$x = 8$$

$AC = 13$
$DB = 14$

6.

Find the length of $\overline{DB}$.

$$8(12) = 3x(2x)$$

$$96 = 6x^2$$

$$16 = x^2$$

$$4 = x$$

$DB = 8 + 12 = 20$

12

Name_____ ID: 1

Assignment

Date_____ Period____

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

1)

$16 \cdot 7 = 112$

$14X \quad \dfrac{112}{14}$

$X = 8$

2)

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

$X = 15$

3)

$\dfrac{14x}{14} = \dfrac{252}{14}$

$x = 18$

4)

$\dfrac{7x}{7} = \dfrac{84}{7}$

$x = 12$

5)

$\dfrac{5x}{5} = \dfrac{60}{5}$

$x = 12$

6)

$\dfrac{10x}{10} = \dfrac{180}{10}$

$x = 18$

7)

$\dfrac{15x}{15} = \dfrac{180}{15}$

$x = 12$

8)

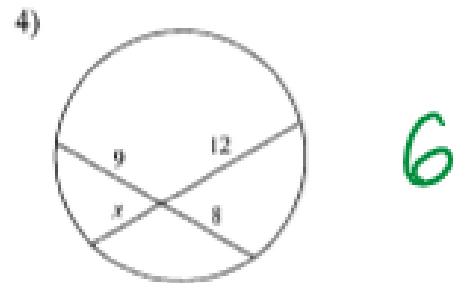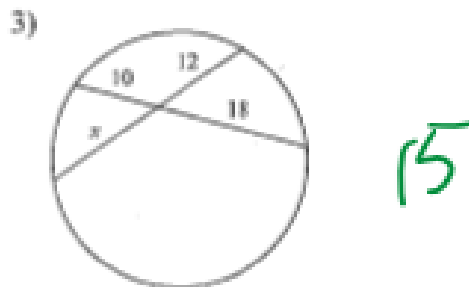$\dfrac{30x}{30} = \dfrac{420}{30}$

$x = 14$
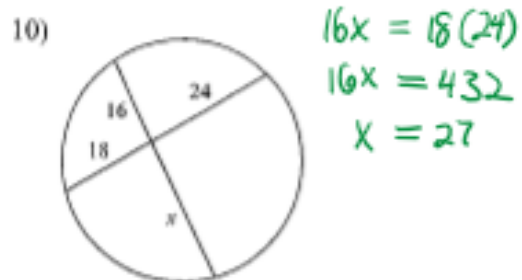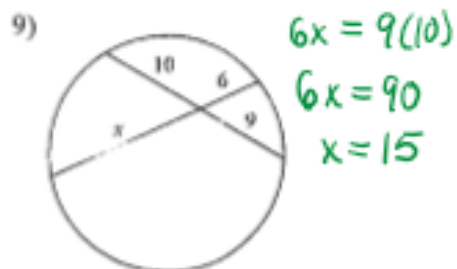
9)

$\dfrac{6x}{6} = \dfrac{36}{6}$

$x = 6$

10)

$\dfrac{8x}{8} = \dfrac{120}{8}$

$x = 15$

13

Chords in Circles

Solve for *x*. Assume that lines which appear tangent are tangent.
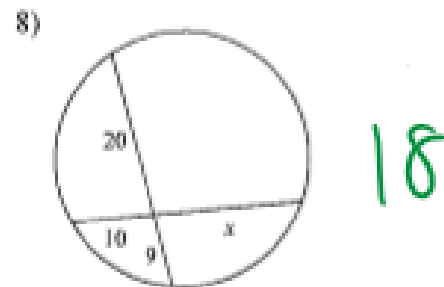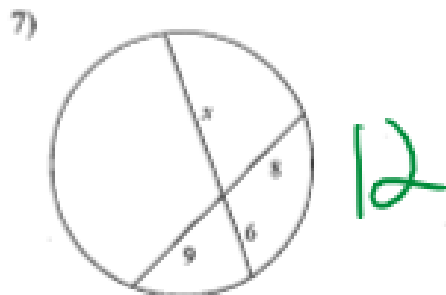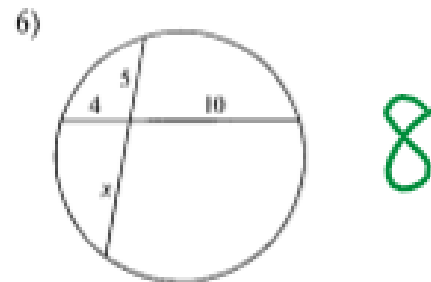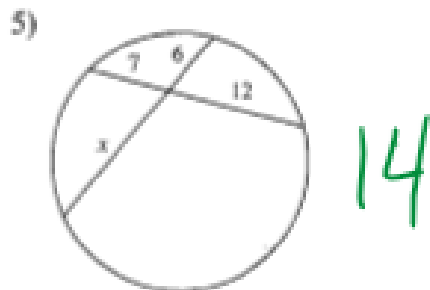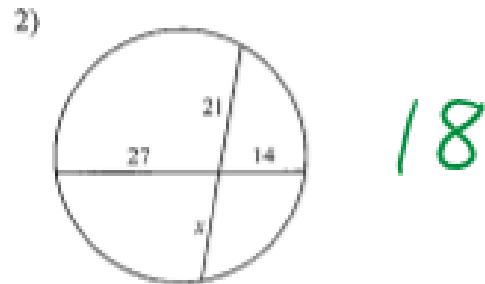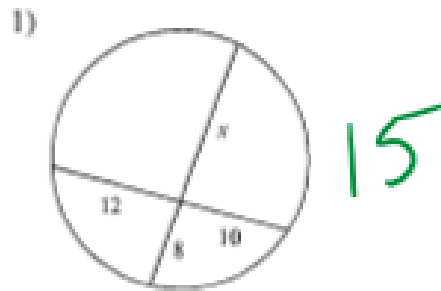
1)

12
8 10

15

2)

21
27   14
x

18

3)

10   12
18
x

15

4)

9   12
x   8

6

5)

7   6
12
x

14

6)

5
4   10
x

8

7)

x
8
9   6

12

8)

20
10   x
9

18

14

9)

Circle with segments labeled 10, 6, x, 9

$6x = 9(10)$
$6x = 90$
$x = 15$

10)

Circle with segments labeled 24, 16, 18, x

$16x = 18(24)$
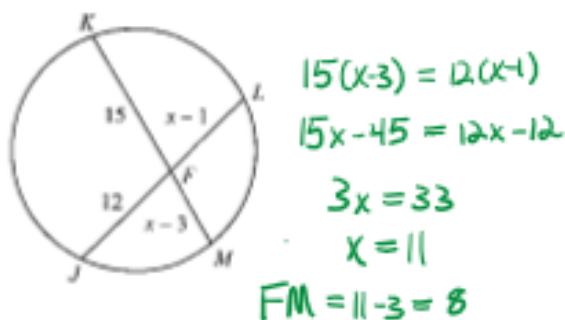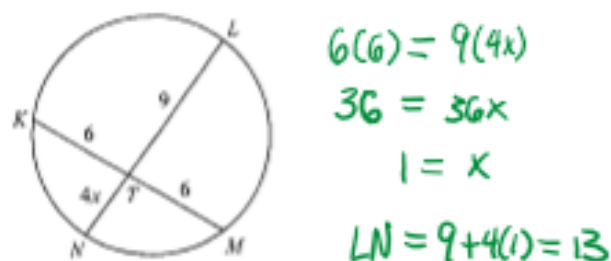$16x = 432$
$x = 27$

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

HW 13-16

11) Find *FM*

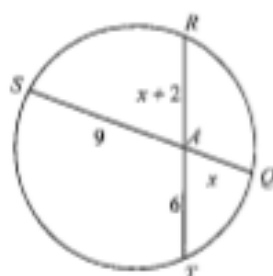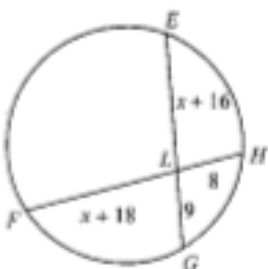Circle with points K, L, F, M, J and segments 15, x−1, 12, x−3

12) Find *LN*

Circle with points L, K, T, N, M and segments 9, 6, 4x, 6

$15(x-3) = 12(x-1)$
$15x - 45 = 12x - 12$
$3x = 33$
$x = 11$
$FM = 11 - 3 = 8$

$6(6) = 9(4x)$
$36 = 36x$
$1 = x$
$LN = 9 + 4(1) = 13$

13) Find *BD*

Circle with points C, B, L, A, D and segments 3x+1, 8, 9, 3x+3

14) Find *SQ*

Circle with points R, S, A, Q, T and segments x+2, 9, x, 6

15) Find *LE*

Circle with points E, L, H, F, G and segments x+16, 8, x+18, 9

16) Find *JS*

Circle with points P, Q, J, S, R and segments 12, 9, x, x−2
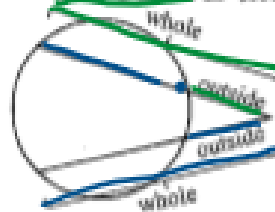
15

1.
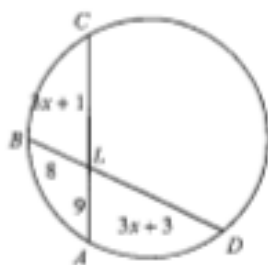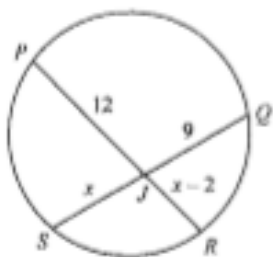
Use the provided image to determine which of the following statements is NOT true.

A. $m\overarc{AB} = m\overarc{CD}$
B. $\overarc{AB} > \overarc{CD}$.
C. The two circles are similar.
D. The two circles are congruent.

2.
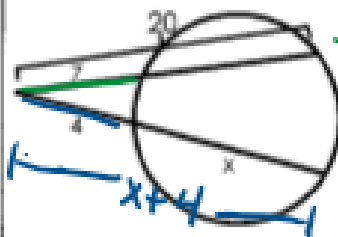
Two secants intersect **OUTSIDE** the circle.

whole
outside
outside
whole

outside (whole) = outside (whole)

Sometimes you have to **add** to get the whole.

3.

Solve for x.

20
7
4
x
x+4

$O(w) = O(w)$

$7(20) = 4(x+4)$

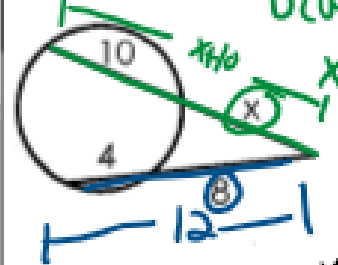$140 = 4x + 16$

$124 = 4x$

$31 = x$

4.

Solve for x.

x
x+5
5
8
6
14

$O(w) = O(w)$

$5(x+5) = 6(14)$

$5x + 25 = 84$

$5x = 59$

$x = 11.8$

5.

Solve for x.

10
x
4
8
12

$O(w)$
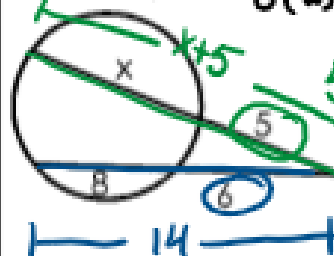
$x(x+10) = 8(14)$

$x^2 + 10x = 96$

$x^2 + 10x - 96 = 0$

$(x+16)(x-6) = 0$ 6, 16

$x + 16 = 0$ $x - 6 = 0$

$\cancel{x = -16}$ $\boxed{x = 6}$

6.

Secant And Tangent
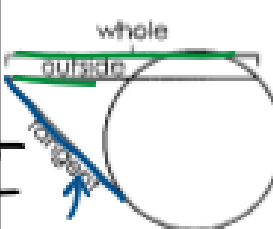
whole
outside

$t(t) = O(w)$

$t^2 = O(w)$

$(tangent)^2 = $ outside (whole)

16

Solve for x

$x+12$

12

x

18

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

$12x + 144 = 324$
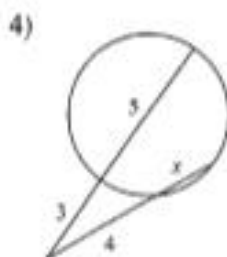
$12x = 180$

$x = 15$

7

Solve for x.
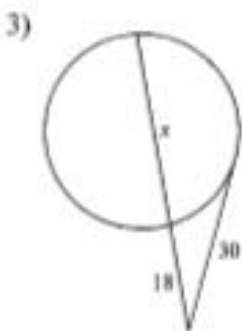
20

15

5

$x(x) = 5(20)$

$x^2 = 100$

$x = 10$
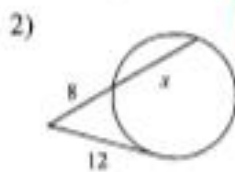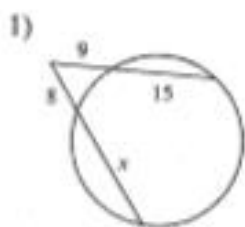
8

Secants and Tangents

Date_____ Period_____

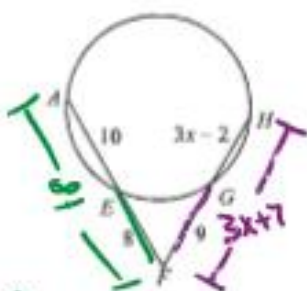**Solve for x.** Assume that lines which appear tangent are tangent.

HW 1-4

1)

9
8
15
x

2)

8
x
12

3)

x
30
18

4)

5
x
3
4

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

5) Find HF

A
10   3x-2   H
E
8   G
9   3x+7
F

$8(18) = 9(3x+7)$

$HF = 16$

6) Find SQ

3x+19
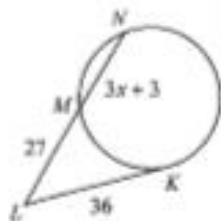S   18 R   Q
31x+1
30
T
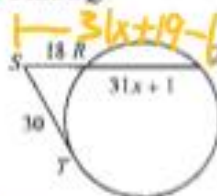
$900 = 18(31x+19)$

$900 = 558x + 342$

$558 = 558x$

$1 = x$

$SQ = 50$

7) Find MN

N
3x+3
M
27
K
L   36

$27(3x+30) = 36^2$

$81x + 810 = 1296$

$81x = 486$

$x = 6$

$\overline{MN} = 3(6)+3 = 21$

8) Find TU

2x+2
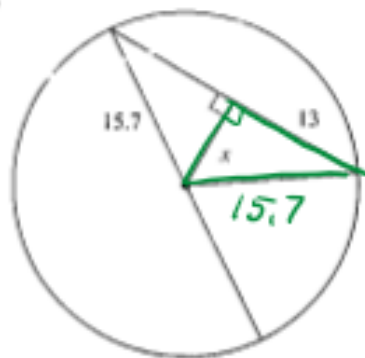V
3
U
6
10
W
2x-3
T
4
D
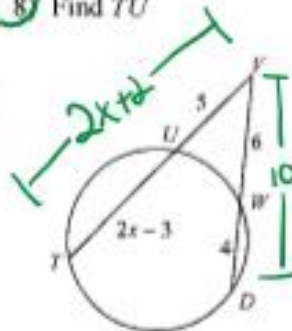
$6(10) = 5(2x+2)$

$60 = 10x + 10$

$5 = x$

$TU = 2(5)-3 = 7$

18

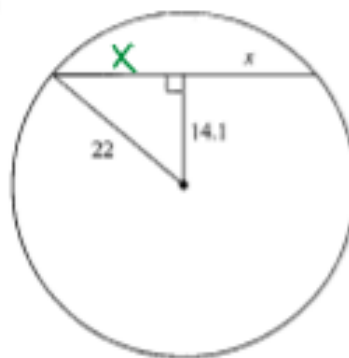**Find the length of the segment indicated. Round your answer to the nearest tenth if necessary.**
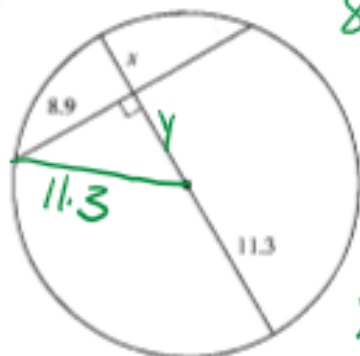
9)

$13^2 + x^2 = 15.7^2$

$x = 8.8$

10)

$x^2 + 14.1^2 = 22^2$

$x = 16.9$
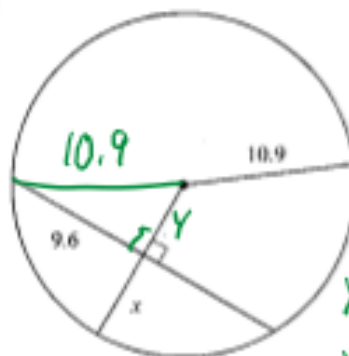
11)

$8.9^2 + y^2 = 11.3^2$

$y = 7.0$

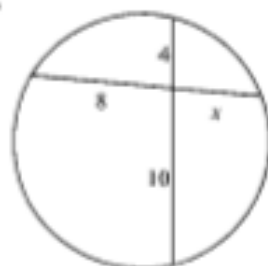$x = 11.3 - 7.0$

$x = 4.3$

12)

$9.6^2 + y^2 = 10.9^2$

$y = 5.2$

$x = 10.9 - 5.2$

$x = 5.7$

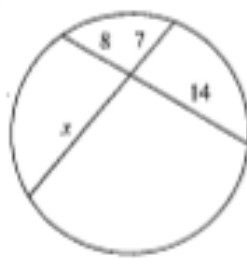**Solve for x. Assume that lines which appear tangent are tangent.**
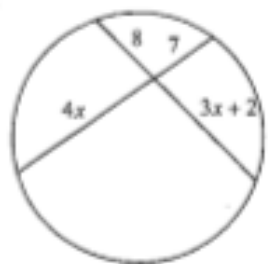
13)

$4(10) = 8x$

$40 = 8x$

$5 = x$

14)

$7x = 8(14)$

$7x = 112$

$x = 16$

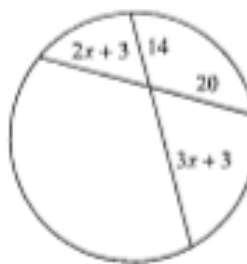15)

$8(3x + 2) = 7(4x)$

$24x + 16 = 28x$

$16 = 4x$

$4 = x$

16)

$20(2x + 3) = 14(3x + 3)$

$40x + 60 = 42x + 42$

$18 = 2x$

$9 = x$

19