

Multiple Choice: Circle your final answer.

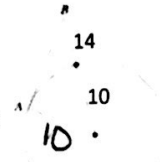
1. Assuming  $\overline{AB}$  is tangent to the circle. Determine the value of AB.

- a. 10.3
- b. 21.8**
- c. 26.5
- d. 59.9

$$10^2 + x^2 = 24^2$$

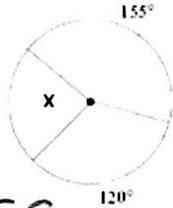
$$100 + x^2 = 576$$

$$x^2 = 476$$



2. Find the value of x.

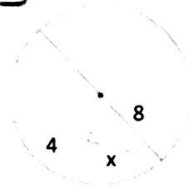
- a. 75°
- b. 85°**
- c. 150°
- d. 170°



$$x = 360 - 120 - 155$$

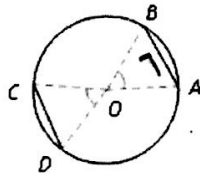
3. Find the value of x.

- a.  $4\sqrt{3}$
- b.  $8\sqrt{3}$
- c. 4**
- d. 16



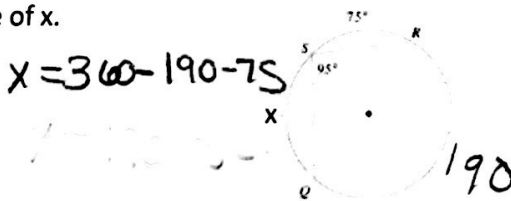
4. Given AB = 7, find CD.

- a. 7**
- b. 14
- c. 60
- d. 45



5. Find the value of x.

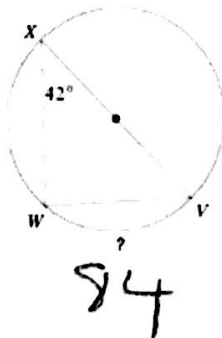
- a. 75°
- b. 85°
- c. 95°**
- d. 100°



$$x = 360 - 190 - 75$$

6. Find the measure of arc WV.

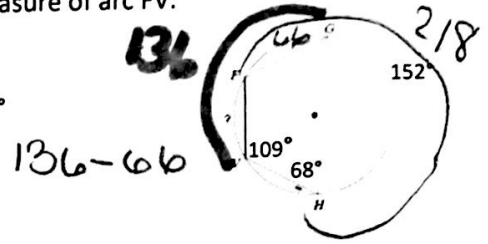
- a. 46°
- b. 84°**
- c. 96°
- d. 24°



$$84$$

7. Find the measure of arc FV.

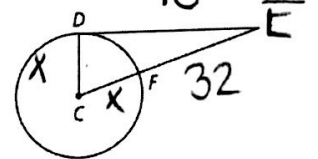
- a. 70°**
- b. 66°
- c. 132°
- d. 28°



$$136 - 66$$

8. If DE = 40 and FE = 32, find the radius.

- a. 10
- b. 5.2
- c. 9**
- d. 9.5



$$x^2 + 40^2 = (x + 32)^2$$

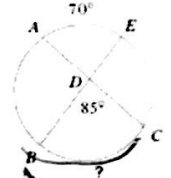
$$x^2 + 1600 = x^2 + 64x + 1024$$

$$576 = 64x$$

$$x = 9$$

9. Find the measure of arc BC.

- a. 70°
- b. 85°
- c. 100°**
- d. 170°



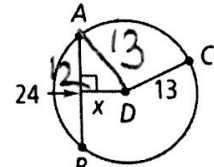
$$85 = \frac{1}{2}(70 + x)$$

$$170 = 70 + x$$

$$100 = x$$

10. Find the value of x.

- a. 5**
- b. 6
- c. 9
- d. 10



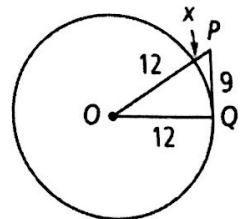
$$12^2 + x^2 = 13^2$$

$$144 + x^2 = 169$$

$$x^2 = 25$$

11. Find the value of x.

- a. 2
- b. 8
- c. 3**
- d. 10



$$12^2 + 9^2 = (x + 12)^2$$

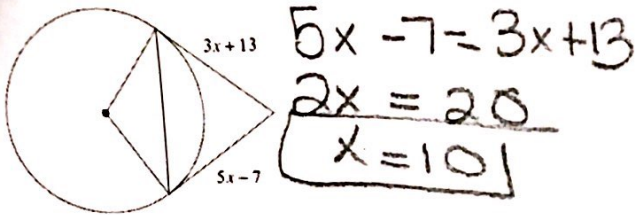
$$225 = x^2 + 24x + 144$$

$$x^2 + 24x - 81 = 0$$

$$(x + 27)(x - 3) = 0$$

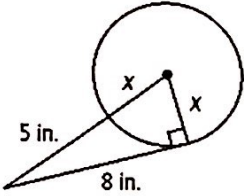
Port Answer: Show all your work.

12. Solve for x.



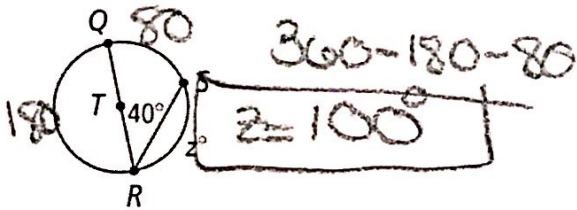
$$\begin{aligned} 5x - 7 &= 3x + 13 \\ 2x &= 20 \\ \boxed{x &= 10} \end{aligned}$$

13. Solve for x.



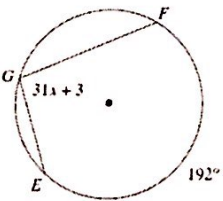
$$\begin{aligned} x^2 + 8^2 &= (x+5)^2 \\ x^2 + 64 &= x^2 + 10x + 25 \\ 64 &= 10x + 25 \\ 39 &= 10x \\ \boxed{3.9 &= x} \end{aligned}$$

14. Find the value of z.



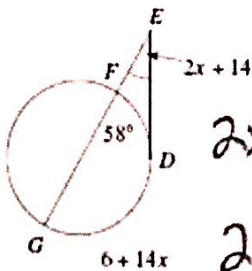
$$\begin{aligned} 360 - 180 - 80 \\ \boxed{z &= 100} \end{aligned}$$

15. Find the value of x.



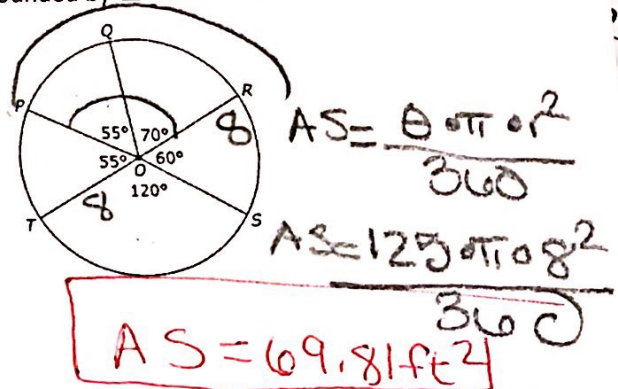
$$\begin{aligned} 31x + 3 &= \frac{1}{2} (192) \\ 31x + 3 &= 96 \\ 31x &= 93 \\ \boxed{x &= 3} \end{aligned}$$

16. Solve for x.



$$\begin{aligned} 2x + 14 &= \frac{1}{2} (6 + 14x - 58) \\ 2x + 14 &= \frac{1}{2} (14x - 52) \\ 2x + 14 &= 7x - 26 \\ 40 &= 5x \\ \boxed{8 &= x} \end{aligned}$$

17. The diameter of circle O has a length of 16 ft. What is the approximate area of the sector bounded by  $\angle POR$  and arc PQR.



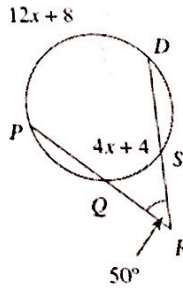
$$\begin{aligned} AS &= \frac{\theta}{360} \pi r^2 \\ AS &= \frac{120}{360} \pi (8)^2 \\ \boxed{AS &= 69.81 \text{ ft}^2} \end{aligned}$$

18. A 40-inch pendulum swings through an angle of  $18^\circ$ . Find the length of the arc in inches through which the end of the pendulum swings.



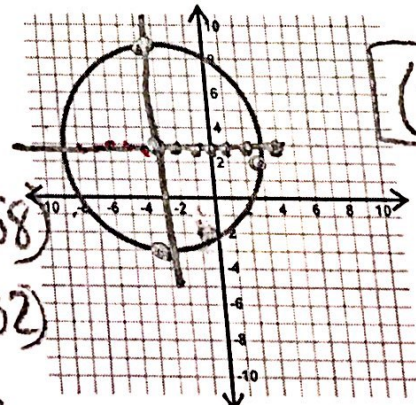
$$\begin{aligned} AL &= \frac{\theta}{180} \pi r \\ AL &= \frac{18}{180} \pi (40) \\ \boxed{AL &= 12.57} \end{aligned}$$

19. Find the value of x.



$$\begin{aligned} 50 &= \frac{1}{2} ((12x+8) - (4x+4)) \\ 50 &= \frac{1}{2} (8x+4) \\ 100 &= 8x+4 \\ 96 &= 8x \\ \boxed{x &= 12} \end{aligned}$$

20. Write the equation for the circle below.



$$\boxed{(x+3)^2 + (y-3)^2 = 36}$$

$$\begin{aligned} C &= (-3, 3) \\ r &= 6 \end{aligned}$$

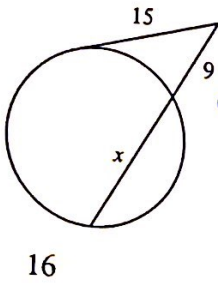
Segment Lengths in Circles

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

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

1)



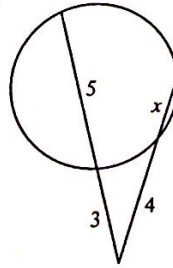
$$15^2 = 9(x+9)$$

$$225 = 9x + 81$$

$$144 = 9x$$

$$\boxed{16 = x}$$

2)



$$3(3+5) = 4(x+4)$$

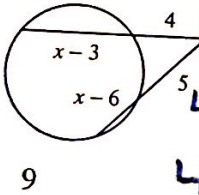
$$3(8) = 4x + 16$$

$$24 = 4x + 16$$

$$8 = 4x$$

$$\boxed{2 = x}$$

3)



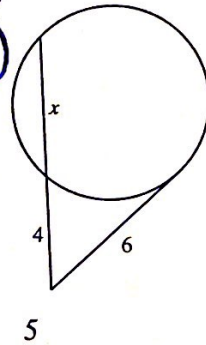
$$4(x-3+4) = 5(x-6+5)$$

$$4(x+1) = 5(x-1)$$

$$4x+4 = 5x-5$$

$$\boxed{9 = x}$$

4)



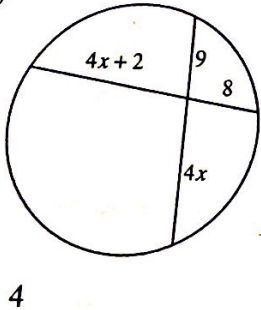
$$6^2 = 4(x+4)$$

$$36 = 4x + 16$$

$$20 = 4x$$

$$\boxed{5 = x}$$

5)



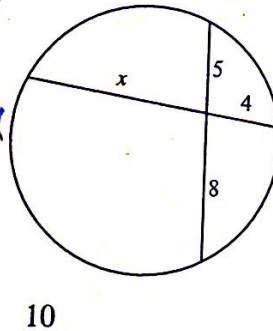
$$8(4x+2) = 9 \cdot 4x$$

$$32x+16 = 36x$$

$$16 = 4x$$

$$\boxed{4 = x}$$

6)

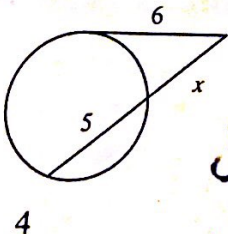


$$4x = 8(5)$$

$$4x = 40$$

$$\boxed{x = 10}$$

7)



$$6^2 = x(x+5)$$

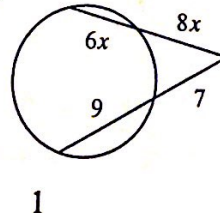
$$36 = x^2 + 5x$$

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

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

$$x = -9 \quad \boxed{x = 4}$$

8)



$$8x(6x+8x) = 7(9+7)$$

$$8x(14x) = 7(16)$$

$$\frac{112x^2}{112} = \frac{112}{112}$$

$$x^2 = 1 \quad \boxed{x = 1}$$