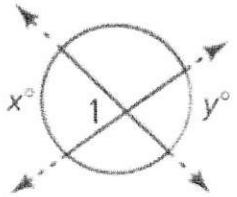
Name: Key _____ Hour: _____ 12.6 Interior and Exterior Angles

The measure of an angle formed by two lines that intersect inside a circle is half the sum of the measures of the intercepted arcs. In (vertex)

angle = $\frac{\text{arc} + \text{arc}}{2}$

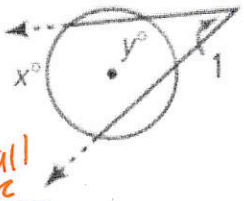


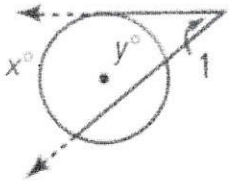
$m\angle 1 = \frac{1}{2}(x + y)$

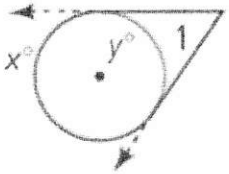
The measure of an angle formed by two lines that intersect outside a circle is half the difference of the measures of the intercepted arcs.

Out (vertex)

angle = $\frac{\text{big arc} - \text{small arc}}{2}$

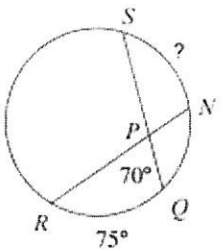






$m\angle 1 = \frac{1}{2}(x - y)$

1.



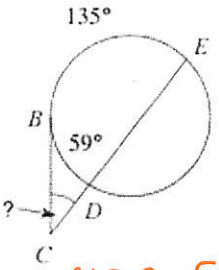
$70 = \frac{1}{2}(75 + x)$

$140 = 75 + x$

$-75 \quad -75$

$65 = x$

2.



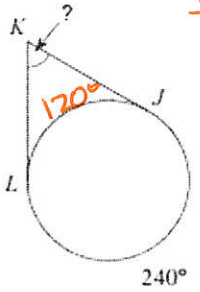
$x = \frac{1}{2}(135 - 59)$

$x = \frac{1}{2}(76)$

$x = 38$

3.

360
−246
120

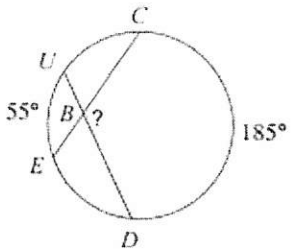


$x = \frac{1}{2}(240 - 120)$

$x = \frac{1}{2}(120)$

$x = 60$

4.

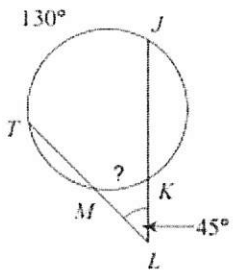


$x = \frac{1}{2}(55 + 185)$

$x = \frac{1}{2}(240)$

$x = 120$

5.



$45 = \frac{1}{2}(130 - x)$

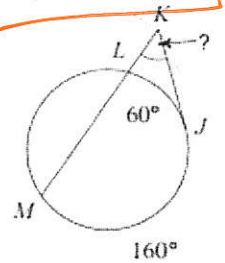
$90 = 130 - x$

$-130 \quad -130$

$-40 = -x$

$40 = x$

6.

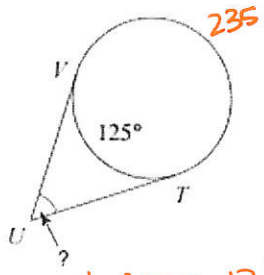


$x = \frac{1}{2}(160 - 60)$

$= \frac{1}{2}(100)$

$x = 50$

7

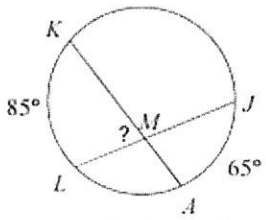


$x = \frac{1}{2}(235 - 125)$

$x = \frac{1}{2}(110)$

$x = 55$

8.

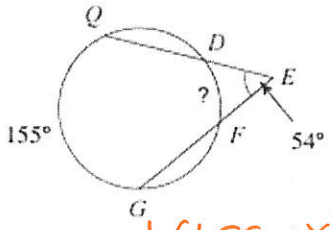


$x = \frac{1}{2}(95 + 65)$

$x = \frac{1}{2}(150)$

$x = 75$

9.



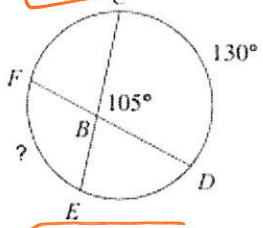
$54 = \frac{1}{2}(155 - x)$

$108 = 155 - x$

$-47 = -x$

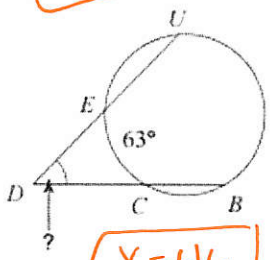
$47 = x$

13.



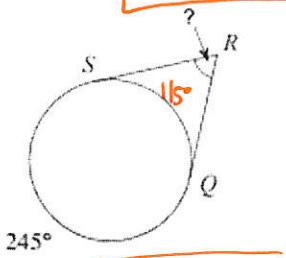
$x = 80$

14.



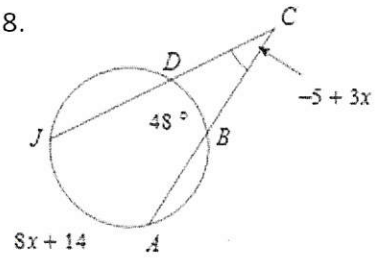
$x = 46$

15.



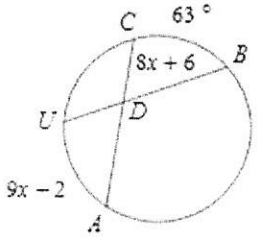
$x = 65$

18.



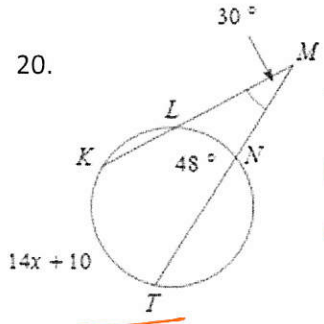
$x = 12$

19.



$x = 7$

20.



$x = 7$

$30 = \frac{1}{2}(14x + 10 - 48)$

$60 = 14x - 38$

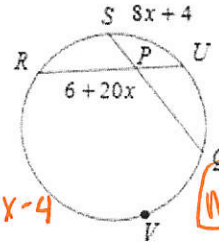
$98 = 14x$

$\frac{98}{14} = \frac{14x}{14}$

$7 = x$

Find the measure of the angle or arc indicated. Assume that lines that appear tangent, are tangent.

24. $m\overset{\frown}{QVR} = 34x - 4$
Find $m\overset{\frown}{QVR}$

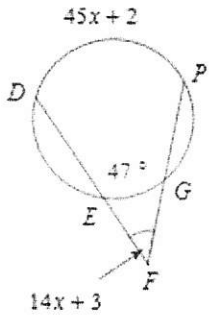


$34x - 4$

$x = 6, 50$

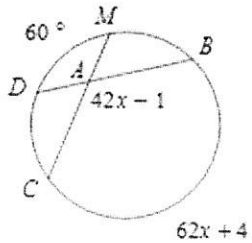
$m\overset{\frown}{QVR} = 200$

25. Find $m\angle DFP$



$\angle DPF = 45°$

26. Find $m\angle BAC$



$42x - 1 = \frac{1}{2}(60 + 62x + 4)$

$84x - 2 = 64 + 62x$

$\frac{22}{22}x = \frac{66}{22}$

$x = 3$

$\angle BAC = 42(3) - 1$

$\angle BAC = 125°$