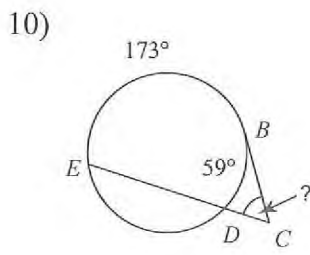
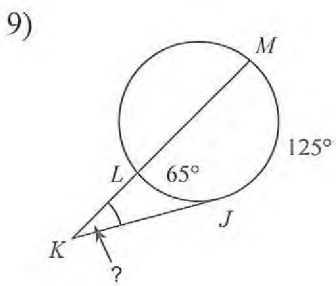
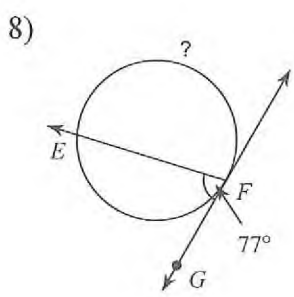
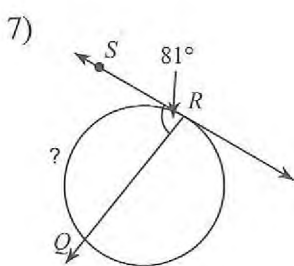
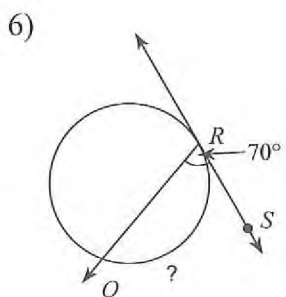
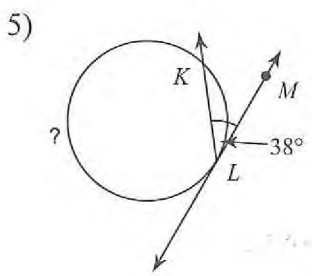
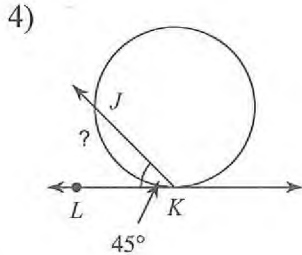
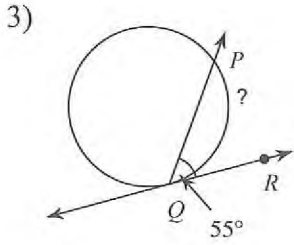
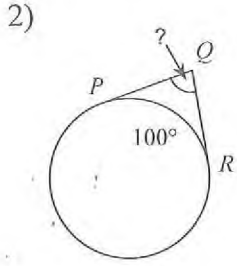
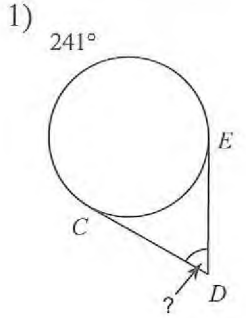
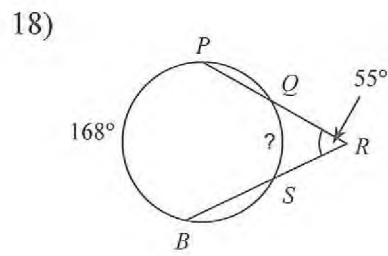
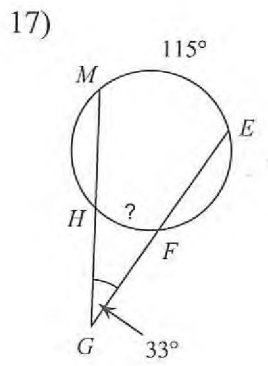
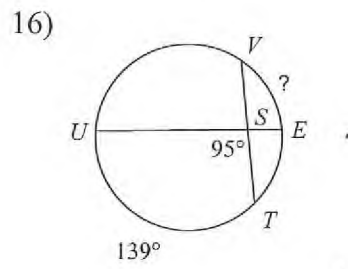
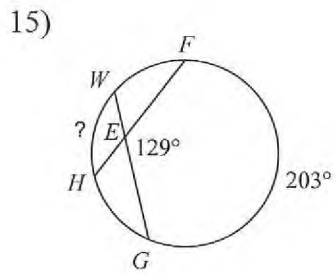
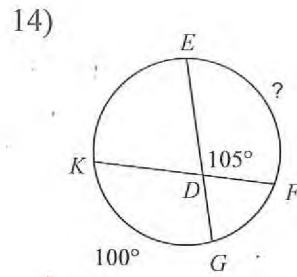
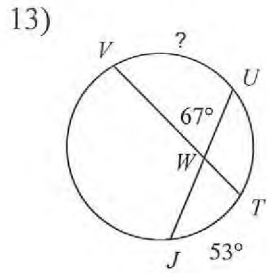
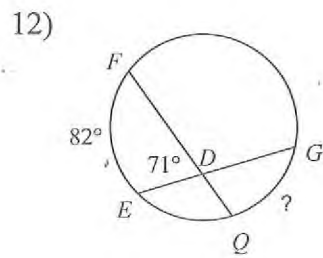
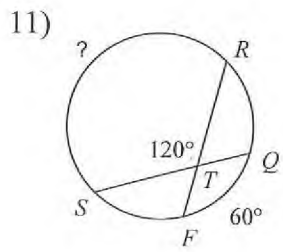


Angles formed by Tangents, Secants and Chords

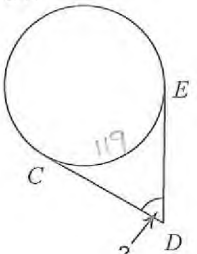
Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

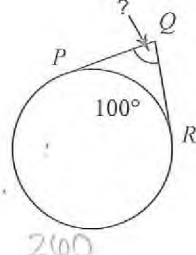


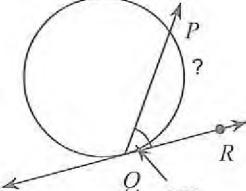


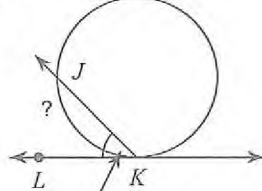
Angles formed by Tangents, Secants and Chords

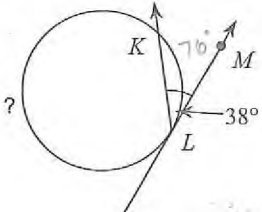
Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

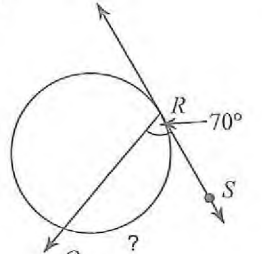
1)  241°
 $360 - 241 = 119$
 $X = \frac{1}{2}(241 - 119)$
 $= \frac{1}{2}(122)$
 $= \boxed{61^\circ}$

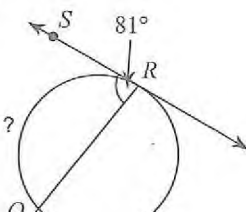
2)  100°
 $360 - 100 = 260$
 $X = \frac{1}{2}(260 - 100)$
 $= \frac{1}{2}(160)$
 $= \boxed{80^\circ}$

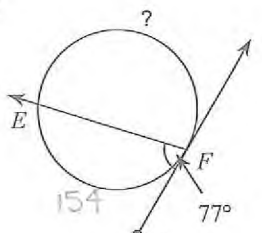
3)  55°
 $55 \cdot 2$
 $\boxed{110^\circ}$

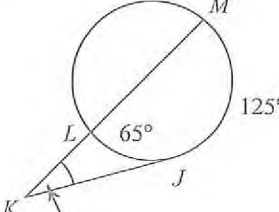
4)  45°
 $45 \cdot 2$
 $\boxed{90^\circ}$

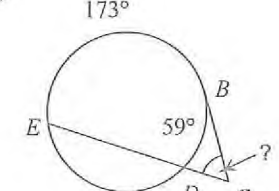
5)  38°
 $38 \cdot 2 = 76$
 $360 - 76$
 $\boxed{284^\circ}$

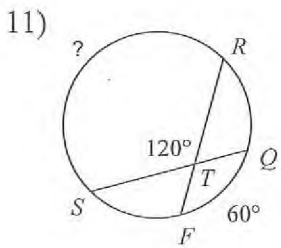
6)  70°
 $70 \cdot 2$
 $\boxed{140^\circ}$

7)  81°
 $81 \cdot 2$
 $\boxed{162^\circ}$

8)  77°
 $77 \cdot 2 = 154$
 $360 - 154$
 $\boxed{206^\circ}$

9)  65°
 125°
 $X = \frac{1}{2}(125 - 65)$
 $= \frac{1}{2}(60)$
 $= \boxed{30^\circ}$

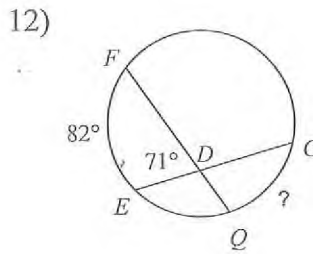
10)  59°
 173°
 $X = \frac{1}{2}(173 - 59)$
 $= \frac{1}{2}(114)$
 $= \boxed{57^\circ}$



$$120 = \frac{1}{2}(x + 60)$$

$$240 = x + 60$$

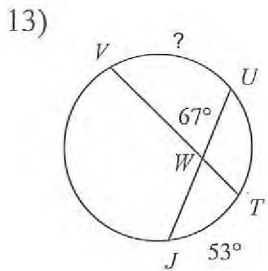
$$180 = x$$



$$71 = \frac{1}{2}(x + 82)$$

$$142 = x + 82$$

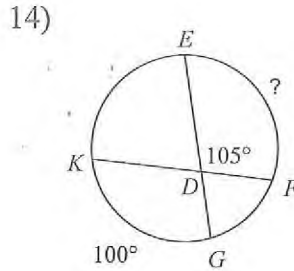
$$60 = x$$



$$67 = \frac{1}{2}(x + 53)$$

$$134 = x + 53$$

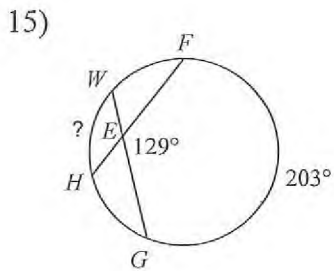
$$81 = x$$



$$105 = \frac{1}{2}(x + 100)$$

$$210 = x + 100$$

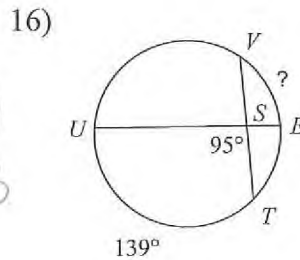
$$110 = x$$



$$129 = \frac{1}{2}(x + 203)$$

$$258 = x + 203$$

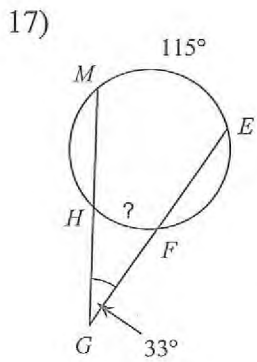
$$55 = x$$



$$95 = \frac{1}{2}(x + 139)$$

$$190 = x + 139$$

$$51 = x$$



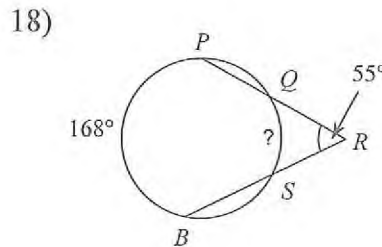
$$\frac{33}{\frac{1}{2}} = \frac{115 - x}{\frac{1}{2}}$$

$$66 = 115 - x$$

$$-115 \quad -115$$

$$-49 = -x$$

$$49 = x$$



$$\frac{55}{\frac{1}{2}} = \frac{168 - x}{\frac{1}{2}}$$

$$110 = 168 - x$$

$$-168 \quad -168$$

$$-58 = -x$$

$$58 = x$$