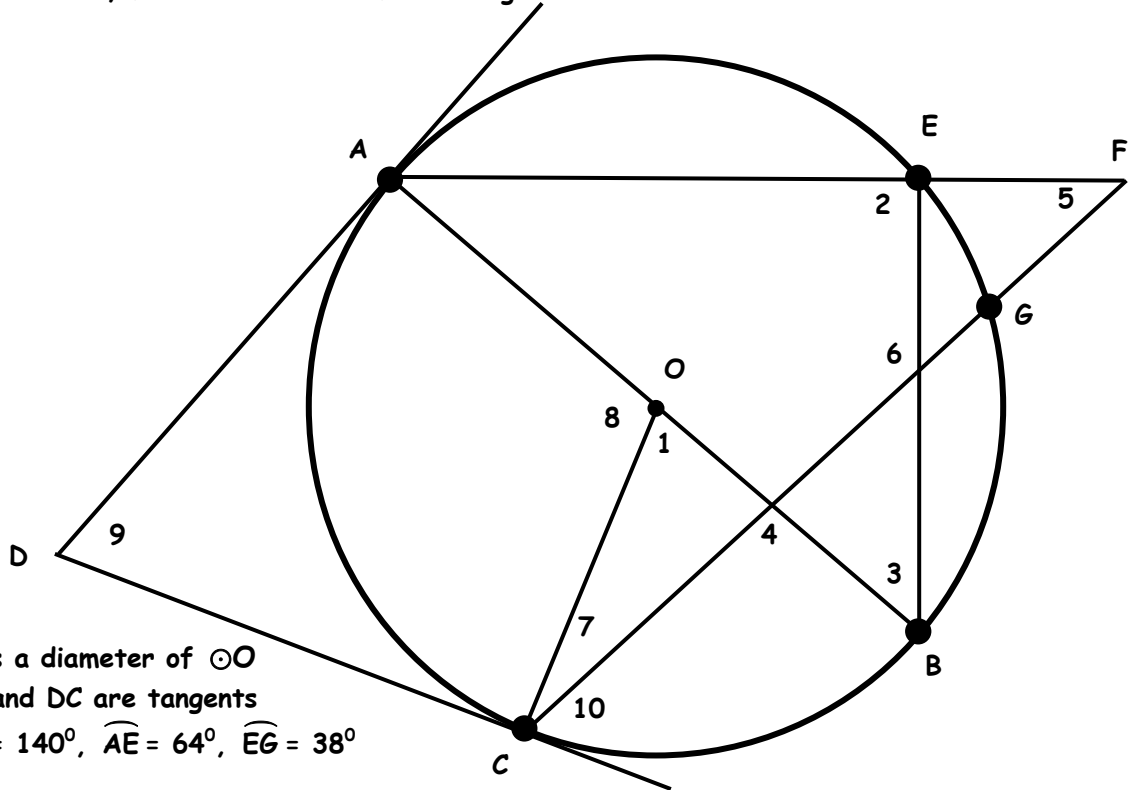


For problems 1 - 12, find the measure of each angle or arc.



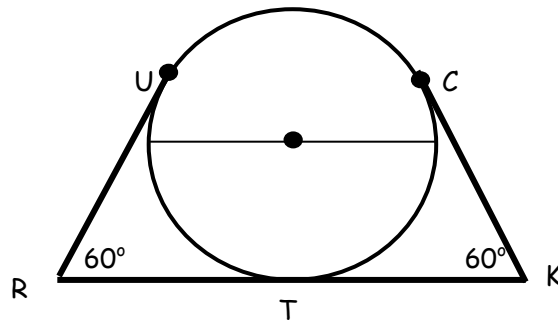
Given: AB is a diameter of $\odot O$
 DA and DC are tangents
 $\widehat{AC} = 140^\circ$, $\widehat{AE} = 64^\circ$, $\widehat{EG} = 38^\circ$

- 1) \widehat{BC}
- 2) \widehat{BG}
- 3) $\sphericalangle 1$
- 4) $\sphericalangle 2$
- 5) $\sphericalangle 3$
- 6) $\sphericalangle 4$
- 7) $\sphericalangle 5$
- 8) $\sphericalangle 6$
- 9) $\sphericalangle 7$
- 10) $\sphericalangle 8$
- 11) $\sphericalangle 9$
- 12) $\sphericalangle 10$

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____
- 6) _____
- 7) _____
- 8) _____
- 9) _____
- 10) _____
- 11) _____
- 12) _____

13) A flatbed truck is hauling a cylindrical container with a diameter of 12 ft. Find the length of cable needed to hold down the container. Exact answer only.

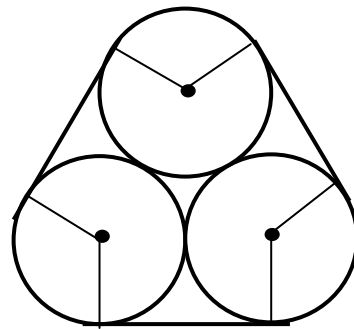
In other words find the length of \overline{RU} , \overline{CK} , and \widehat{UC} .



14) Find the perimeter of the region.

The circles are congruent to each other.

The circles are tangent to each other, and the straight segments are tangent to the circles. The straight segments are 11 units long.



15) Given:

$\triangle ACD$ is equilateral

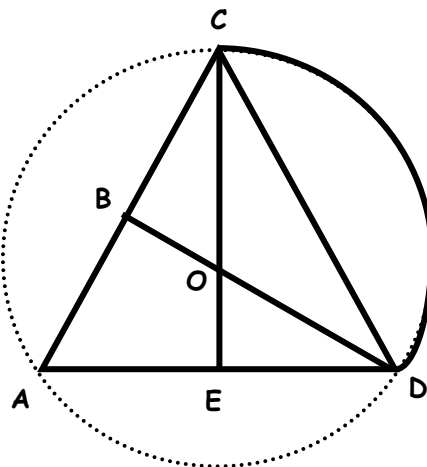
$\overline{DB} \perp \overline{AC}$ and $\overline{CE} \perp \overline{AD}$

\overline{OC} is the radius of \widehat{CD}

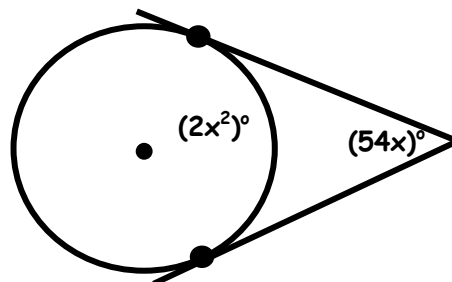
$AC = 16$

a) Find the radius OC .

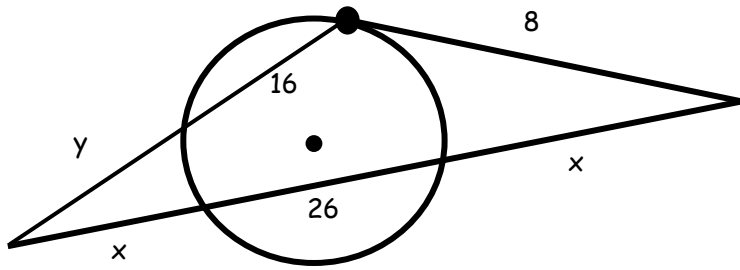
b) Find the length of \widehat{CD}



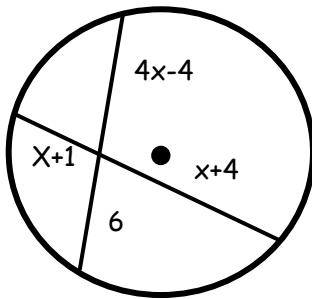
16) Find x .



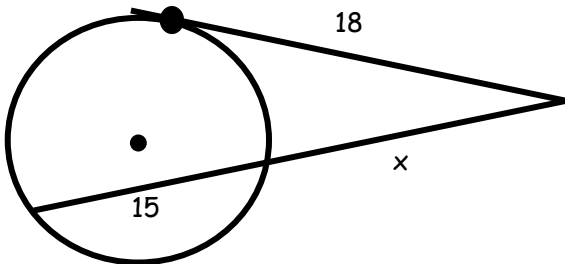
17) Find x and y .



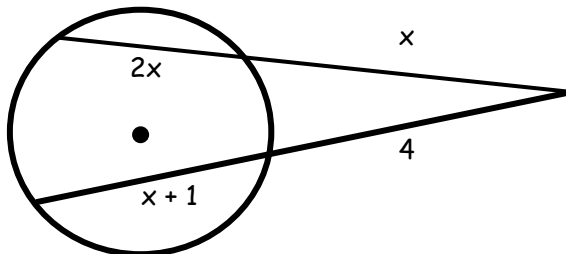
18) Find x .



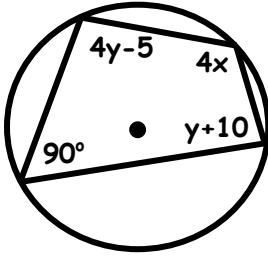
19)



20)



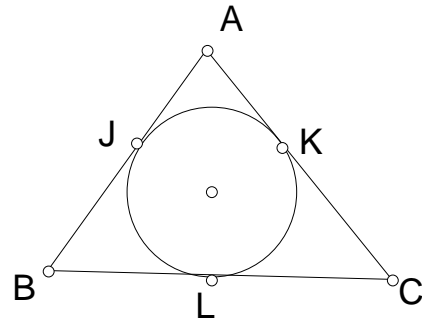
21)



22) Given: \overline{AB} , \overline{AC} , \overline{BC} are tangents to the circle

$$m\widehat{JK} = 135^\circ, \angle C = 52^\circ$$

Find: $m\angle B$



23) GEO is a sector of circle E . Radius $GE = 12$, and the measure of central angle GEO is 60° .

a) Find the length of \widehat{GO} .

b) Find the perimeter of sector GEO .

24) Find the distance around the figure. (In other words, find the lengths of the two tangents and the lengths of the two arcs.) The radius of circle A is 30 . The radius of circle B is 10 . The length of AB is 40 .

