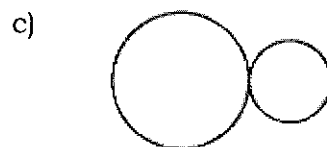
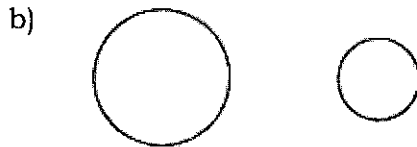
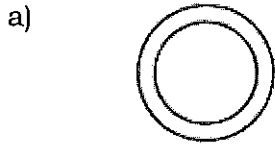


# Circles: Arcs, Angles, Area of Sector, Arc Length Study Guide

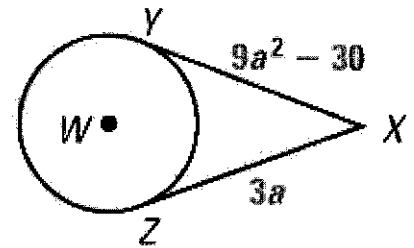
Complete: #4, #5, #6 A-I, #7-14 All

Multiple Problems.

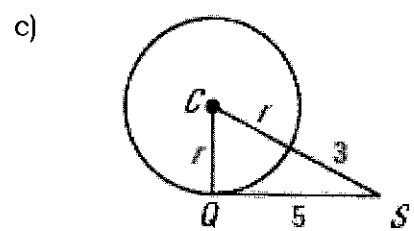
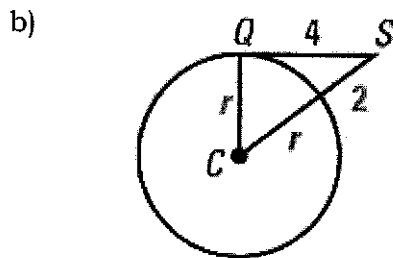
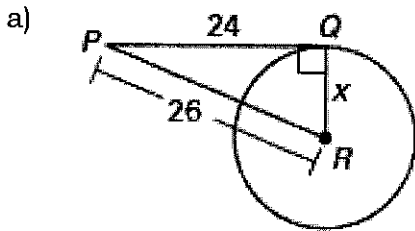
1) How many common tangents do the given circles have?



2)  $\overline{XY}$  and  $\overline{XZ}$  are tangent to circle  $W$ . Find the value of  $a$ :



3) Find the missing variable (lines shown are lines of tangency).



4)  $\overline{AC}$  and  $\overline{BD}$  are diameters of  $\odot F$ . Identify the given arc as a major arc, minor arc, or semicircle. Then find the measure of the arc.

a)  $m\widehat{AB}$

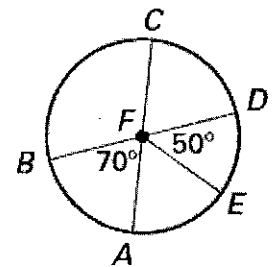
b)  $m\widehat{BC}$

c)  $m\widehat{ABC}$

d)  $m\widehat{AE}$

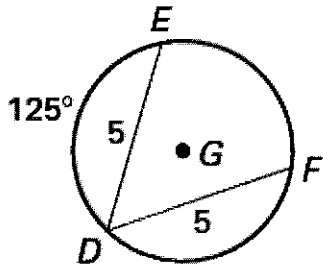
e)  $m\widehat{CDE}$

f)  $m\widehat{BDC}$

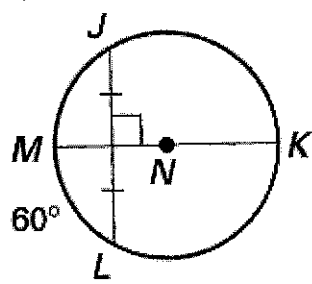


5) Find the measure of the given arc.

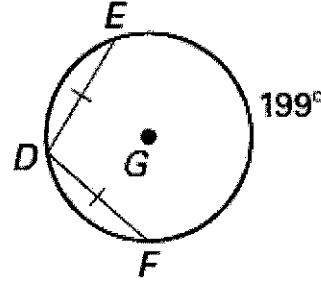
a)  $m\widehat{DF}$



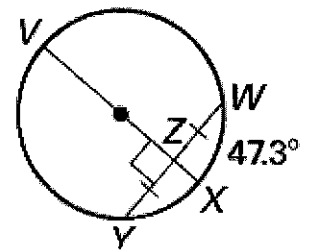
b)  $m\widehat{JML}$



c)  $m\widehat{DE}$

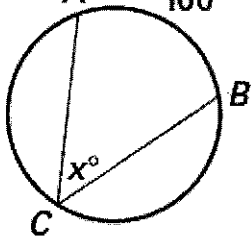


d)  $m\widehat{WVY}$

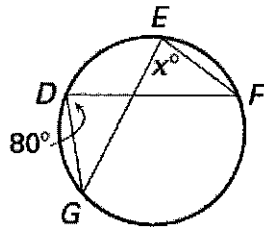


6) Find the value(s) of the variable(s).

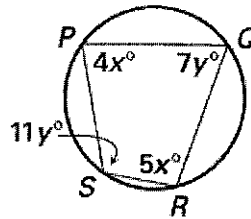
a)  $100^\circ$



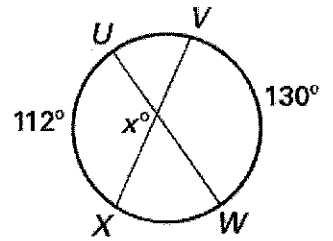
b)



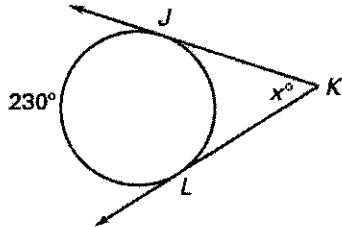
c)



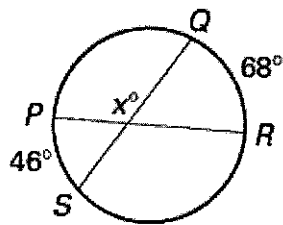
d)



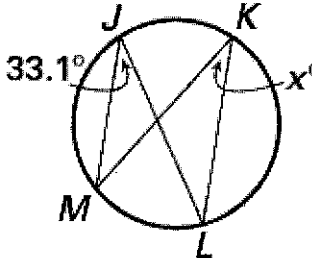
e)



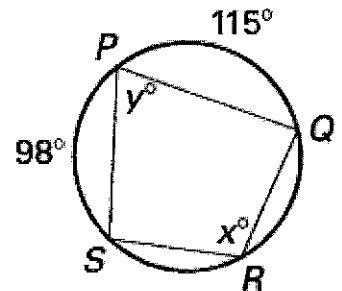
f)



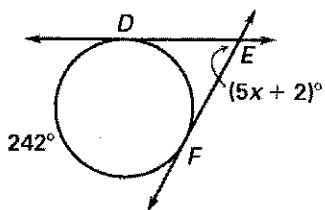
g)



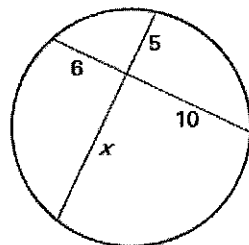
h)



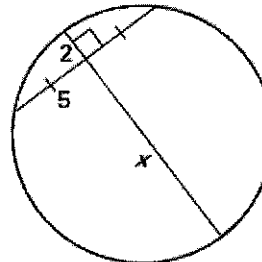
i)



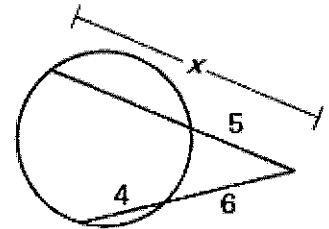
j)



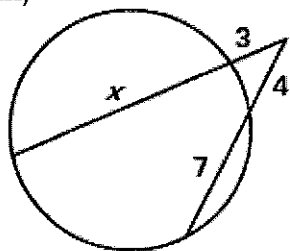
k)



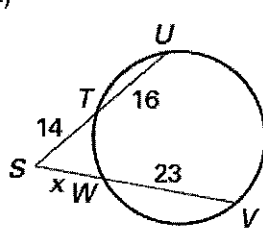
l)



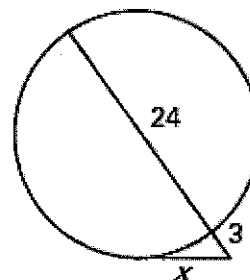
m)



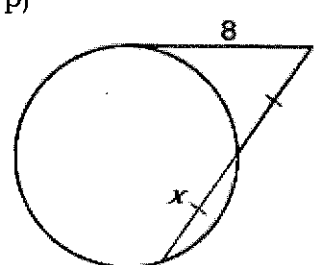
n)

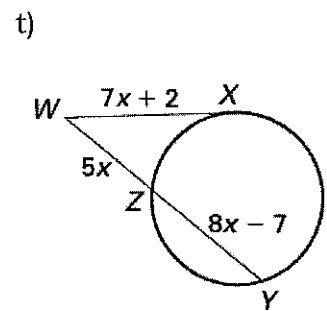
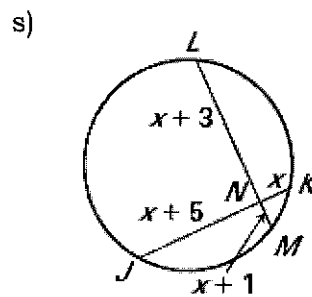
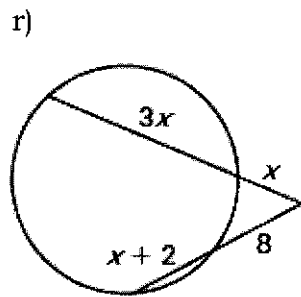
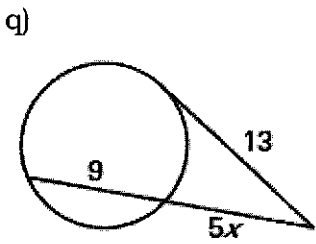


o)

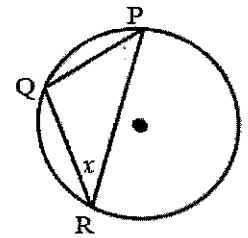


p)

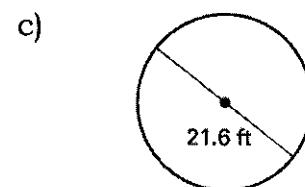
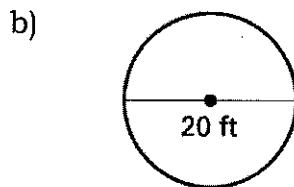
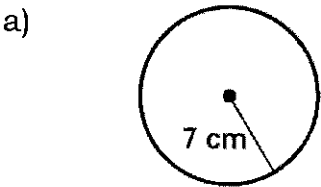




7) In the given circle shown at right,  $m\widehat{PQ} : m\widehat{QR} : m\widehat{PR} = 2:6:10$ . Find the value of  $x$ , and the measure of each arc.



8) Find the circumference of the circles:

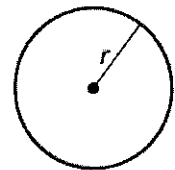


9) Find the length of the radius of the circles given their circumferences:

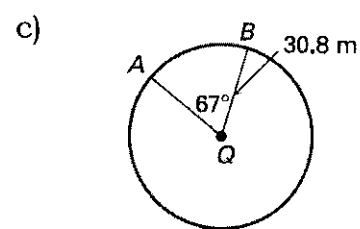
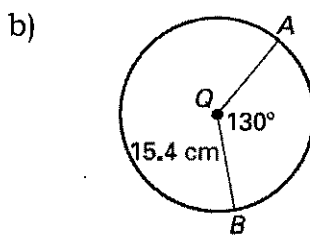
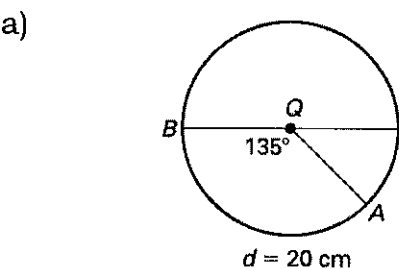
a)  $C = 48$  in

b)  $C = 94$  in

c)  $C = 58$  ft



10) Find the length of  $\widehat{AB}$ .



11) In circle D at right,  $\angle ADC \cong \angle BDC$ . Find the indicated measure.

a)  $m\widehat{ACB}$

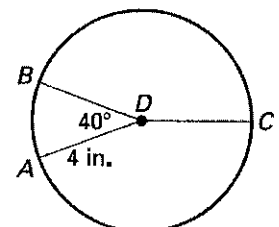
b)  $m\widehat{CB}$

c) length of  $\widehat{ACB}$

d) length of  $\widehat{CB}$

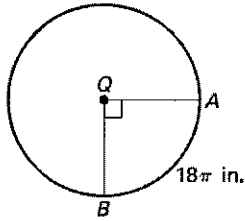
e)  $m\widehat{ABC}$

f) length of  $\widehat{BAC}$

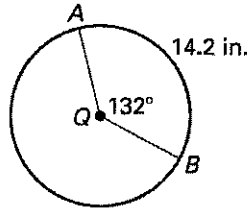


12) Find the indicated measure of each circle.

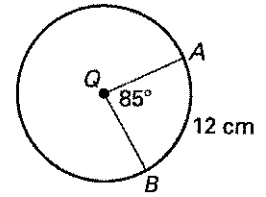
a) radius length



b) radius length

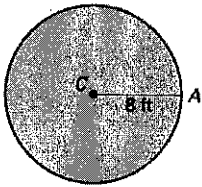


c) circumference

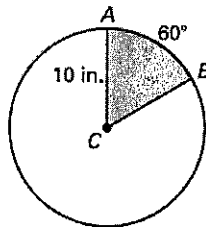


13) Find the area of the shaded region.

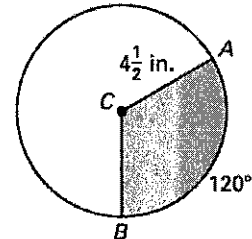
a)



b)

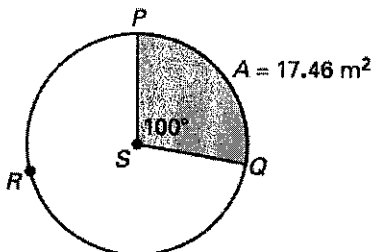


c)

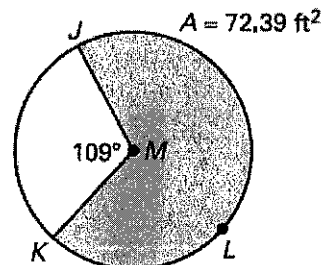


14) Find the indicated measure of each circle.

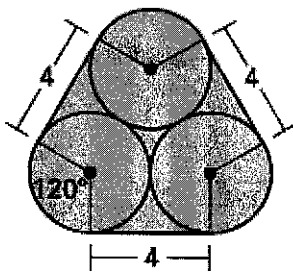
a) Area of the circle



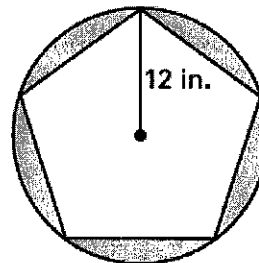
b) diameter



c) perimeter of the shaded region



d) Area of the shaded region (area of the pentagon is approximately 342.5 in<sup>2</sup>)



15) Find the center and radius of a circle that has the standard equation  $(x + 5)^2 + (y - 3)^2 = 81$