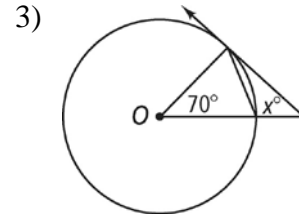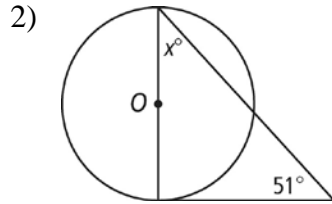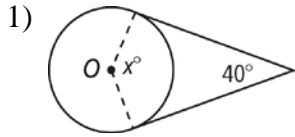Name_____ Date_____

12.1 & 12.2 - Parts of Circles, Tangent Lines, & Properties of Arcs

Assume that lines that appear to be tangent are tangent. O is the center of each circle. What is the value of x?

1)

2)

3)

The circle at the right represents Earth. The radius of the Earth is about 6400 km. Find the distance d that a person can see on a clear day from each of the following heights h above Earth. Round your answer to the nearest tenth of a kilometer.
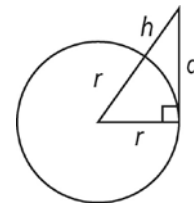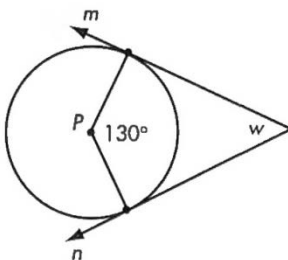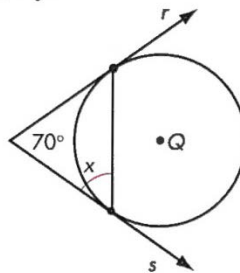

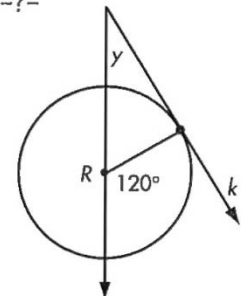4) 12 km

5) 1300 km

Find the missing variables.

6) **Rays m and n are tangents.**
    $w = $ –?–

7) **Rays r and s are tangents.**
    $x = $ –?–
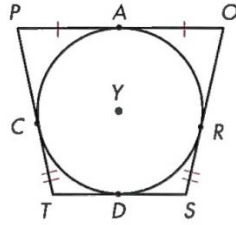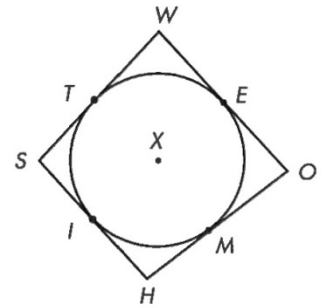

8) **Ray k is a tangent.**
    $y = $ –?–
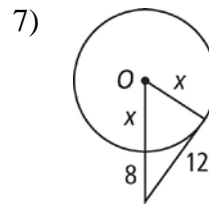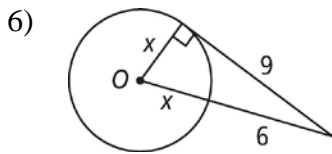
9) Line *t* is a tangent to both circles. *z* = –?–
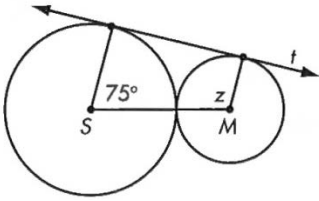
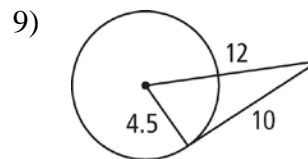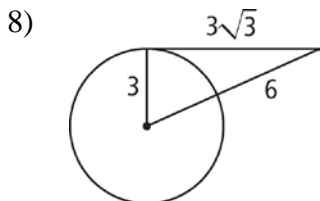10) Quadrilateral *POST* is circumscribed about circle *Y*. *OR* = 13 and *ST* = 12. What is the perimeter of *POST*?

11) Quadrilateral *SHOW* is circumscribed about circle *X*. *WO* = 14, *HM* = 4, *SW* = 11, and *ST* = 5. What is the perimeter of *SHOW*?
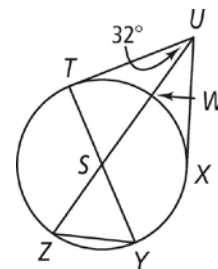

In each circle, what is the value of *x* to the nearest tenth?

6)

7)

Determine whether a tangent line is shown in each diagram. Explain.

8)

9)

10) $\overline{TY}$ and $\overline{ZW}$ are diameters of $\odot S$. $\overline{TU}$ and $\overline{UX}$ are tangents of $\odot$ S. What is $m\angle SYZ$?

Find the measure of each arc in $\odot B$.

11) $\overparen{GJ}$

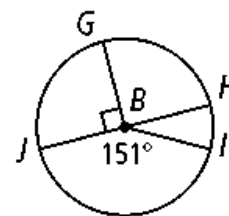12) $\overparen{HI}$

13) $\overparen{HIJ}$

14) $\overparen{GJI}$

15) $\overparen{GHJ}$

16) $\overparen{GJH}$

Find the measure of each x in $\odot P$.

16)
$(4x - 11)°$
$155°$

17)
$65°$
$(3x + 4)°$
$(2x - 19)°$

18)
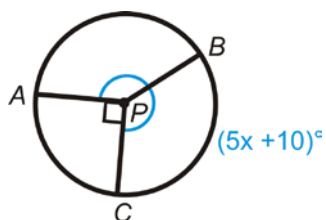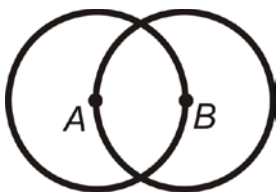$(5x + 10)°$
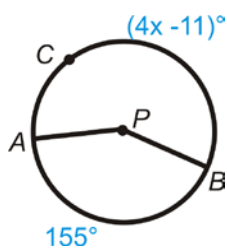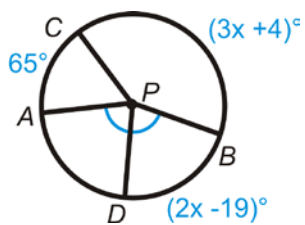
19) What can you conclude about ⊙A and ⊙B?

20) A classmate states that $\overline{BC}$ is tangent to ⊙A. Explain how to show that your classmate is wrong.