Show all work neatly!
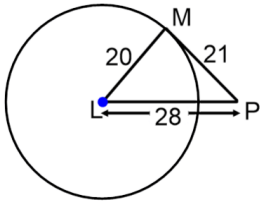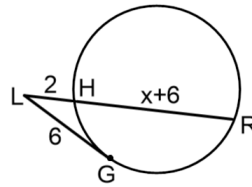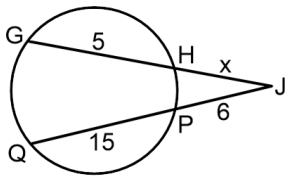
1. How do we know if $\overline{MP}$ is tangent to the circle at M? Is it?
   How could you prove that? Show your work to justify your
   answer.
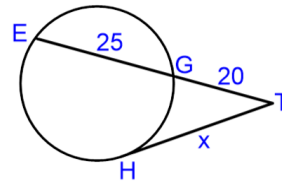

2. Find the value of x. For all remaining questions, if a line
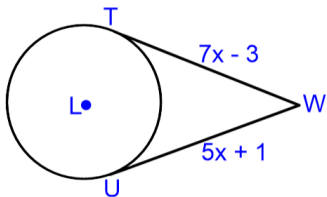   appears to be a tangent, you can safely assume that it is.
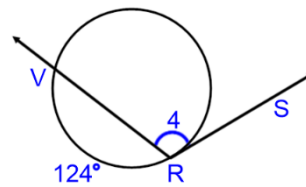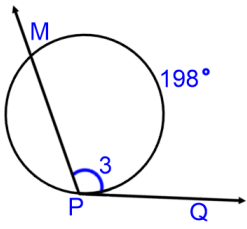

3. Find the value of x.

4. Find the value of x.

5. Find the value of x.
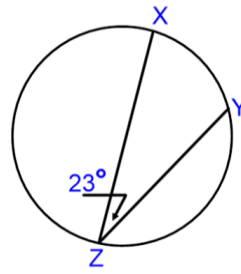

6. Find m<4.

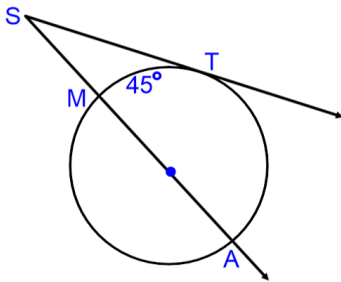7. Find m<3.

M
198°
3
P   Q

8. Find m$\overset{\frown}{XY}$, and m$\overset{\frown}{XZY}$.

X
Y
23°
Z

9. Find m<S.

S
T
45°
M
A

10. Find m$\overset{\frown}{GJ}$.

15° H
G
J
F
59°
L

11. Find m$\overset{\frown}{LJ}$.

L
K 34°
R
J

12. Find m<Y.

Y
L
63° W
105°
X
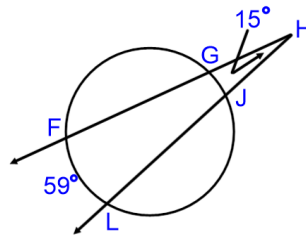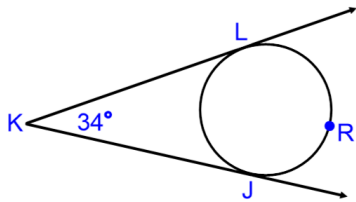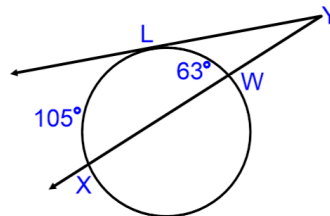
13. Find m$\overarc{MJL}$. Then, find the LENGTH of $\overarc{LM}$, if the radius of circle X is 5 inches.

N, M, X, 100°, J, 50°, 60°, K, L
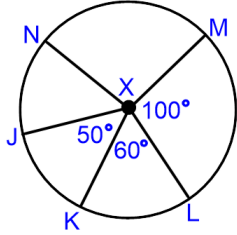
14. Find the value of x.

A, B, 9, x+8, 6, D, 10, C
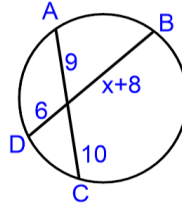
15. Find the value of x.

95°, A, B, x, D, 87°, C
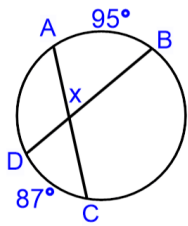
16. Find the radius if AB = 18 and the measure of the minor arc is 130°

A, B
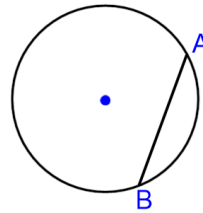
17. What is the area of a pizza with a diameter of 15"?

17 continued...

What is the circumference of the pizza?

What is the area of one slice, if each slice is a 24° sector?

What is the length of crust on one of those slices (the 24° sector)?

What is the area of pizza that would be left over after that slice is eaten?

What is the length of crust that would be left over after that slice is eaten?

18. If the area of circle R is 289π, find the circumference.

19. If circle M has a circumference of 86', then what is its area? Do not round until your final answer, and round that to the nearest hundredth.

20. If the equation for a circle is $(x - 4)^2 + (y + 8)^2 = 49$, find its center and the length of its radius.

21. Write the equation of a circle with a center at (-5, 7) and a radius of length 8 units.

22. Two circles have a linear scale factor of $\frac{4}{5}$.

   A.   Find the area ratio of the two circles.

   B.   Find the area of the larger circle, if the smaller circle has an area of 400π.

   C.   Find the area of the smaller circle, if the larger circle has an area of 875π.

23. A spinning tire has a radius of 34". If the tire spins at a rate of 140 revolutions per minute, how far will the tire travel in 8 minutes?