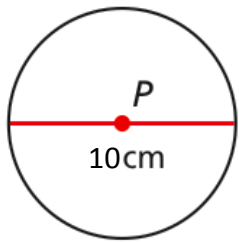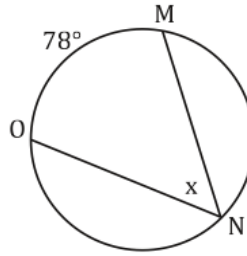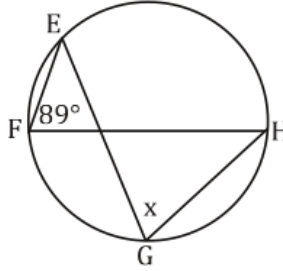| 1. Find the area and perimeter of the circle	2. Find the measure of angle x.
10cm	78° M, O, x, N
3. Find the measure of angle x. A, x, D, 75°, B, C	4. Find the measure of angle x. E, 89°, F, H, x, G
5. Find the area of the shaded sector. 157°, 31ft	6. Find the length of arc LK. L, 18 cm, 272°, K
7. Find the measure of angle x. 100°, y, x, 140°	8. In the figure, segments that appear to be tangent are tangent. Find QS. S, R, 2y + 9, Q, 15, T, 4y, U
9. Solve for y. 16, x, y, diameter = 34, C	10. Solve for each unknown. 110°, V, y, x, 70°, 90°, z, w
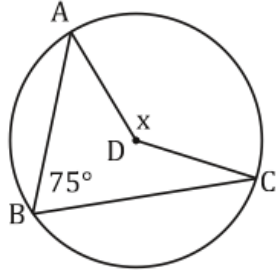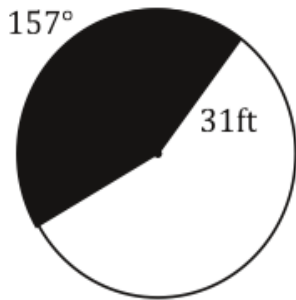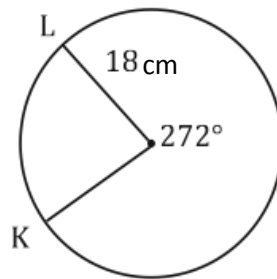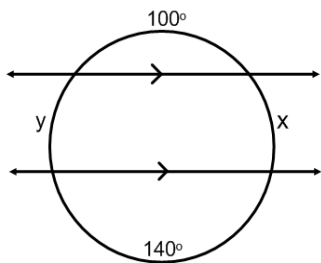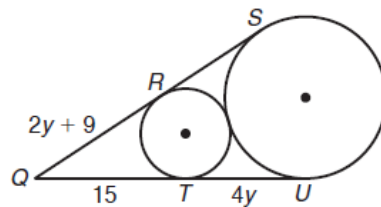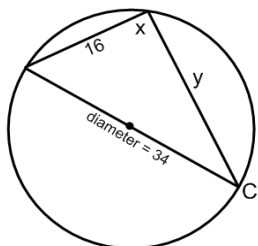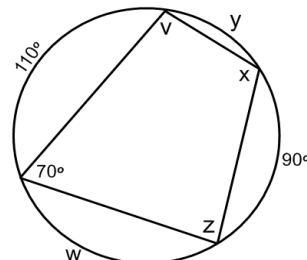
11. Find the length of JK	12. Find the measure of each arc
	$\overset{\frown}{BC}$ $\overset{\frown}{BED}$
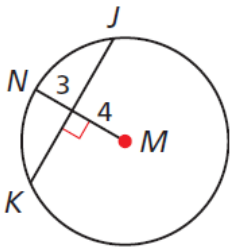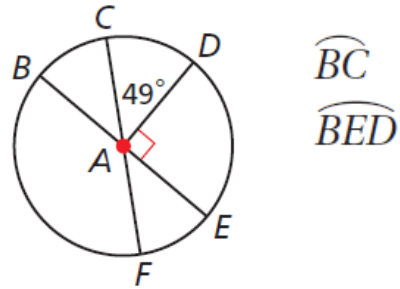
13. Find the value of a	14. Find
$(5a + 20)°$	m∠LJM $(5b - 7)°$ $3b°$
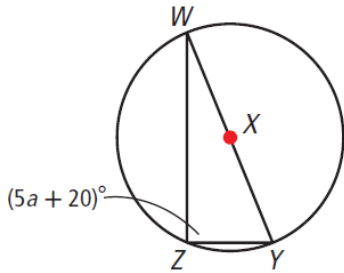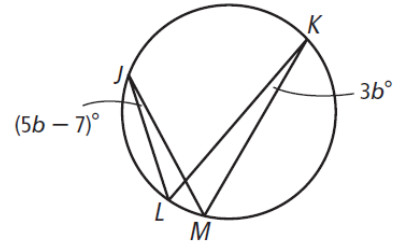
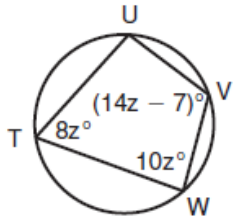| 15. Find each angle measure of the inscribed quadrilateral.	16. Find the area of the shaded sector
$(14z - 7)°$ $8z°$ $10z°$	$36°$ 16 in.
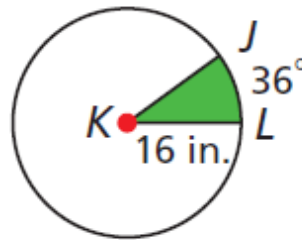
17. Find the area of the shaded portion.	18. Find the value of x.
10 cm 18 cm	$\overrightarrow{AB}$ and $\overrightarrow{AC}$ are tangents. $x =$ _____ 40°
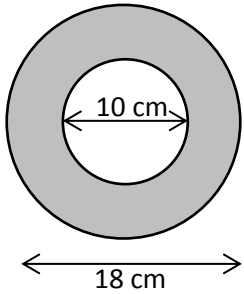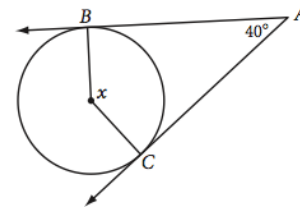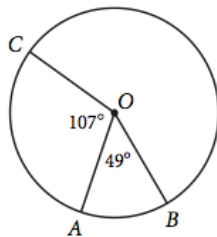
19. Find the measure of each arc	20.
$m\overset{\frown}{AB} =$ _____ $m\overset{\frown}{ABC} =$ _____ $m\overset{\frown}{BAC} =$ _____ $m\overset{\frown}{ACB} =$ _____ 107° 49°	$\overrightarrow{IH}$, $\overrightarrow{IK}$, and $\overrightarrow{KL}$ are tangent to ⊙A. What is IK? $4y + 2$ $5x + 1$ $y^2 - 10$ $6x - 3$