

# Geometry Test Review on Unit 6a – Circles

Name McG Key

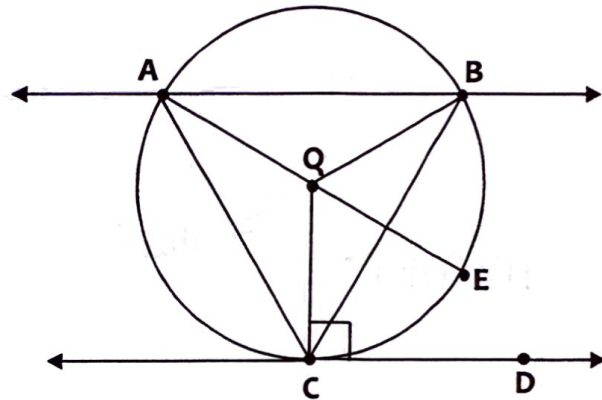
Round all decimal answers to the nearest tenth.

Date \_\_\_\_\_ Block \_\_\_\_\_

**Target 1:** I can define, identify, and use standard notation for the following: radius, diameter, chord, secant, and tangent, major arc, minor arc, intercepted arc, central angle, inscribed angle, congruent arcs, congruent circles, concentric circles, and common tangents.

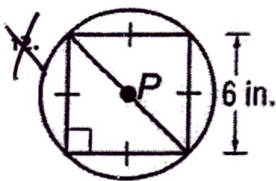
11-11: Given  $\odot Q$ , give at least one example of each term using the correct notation. \*Some terms have more than one example!

- $\widehat{AB}$  /  $\widehat{BE}$  /  $\widehat{AC}$  1. minor arc
- $\sphericalangle BQE$  /  $\sphericalangle CQA$  2. central angle
- $\widehat{ACB}$  /  $\widehat{ECB}$  3. major arc
- $\overleftrightarrow{AB}$  4. secant
- $\overline{AB}$  /  $\overline{BC}$  /  $\overline{AC}$  5. chord
- $\overleftrightarrow{DC}$  6. tangent
- $\overline{QB}$  /  $\overline{QA}$  /  $\overline{QC}$  7. radius
- $\sphericalangle ABC$  /  $\sphericalangle ACB$  8. inscribed angle
- C 9. point of tangency
- $\overline{AE}$  /  $\overline{EA}$  10. diameter
- $\widehat{ABE}$  /  $\widehat{ACE}$  11. Semicircle



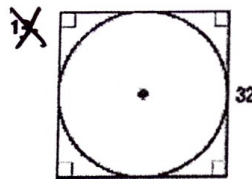
**Target 2:** I can relate measures of central angles to fractions of a circle and calculate circumference, arc length, and the area of a sector.

12-13: Find the circumference and area of each circle using the given inscribed or circumscribed polygon.



$c = \underline{26.7 \text{ in.}}$

$A = \underline{56.5 \text{ in}^2}$

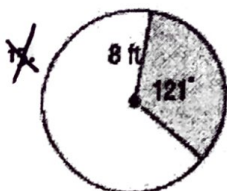


$c = \underline{100.5}$

$A = \underline{804.2}$

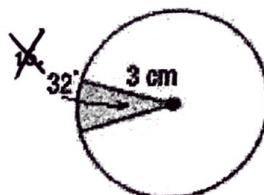
Find the radius of a circle that has an area of 855.3 square millimeters. 16.5 mm

15-16: Find the arc length and area of each shaded sector. Round to the nearest tenth.



$c = \underline{16.9 \text{ ft.}}$

$A = \underline{67.6 \text{ ft}^2}$



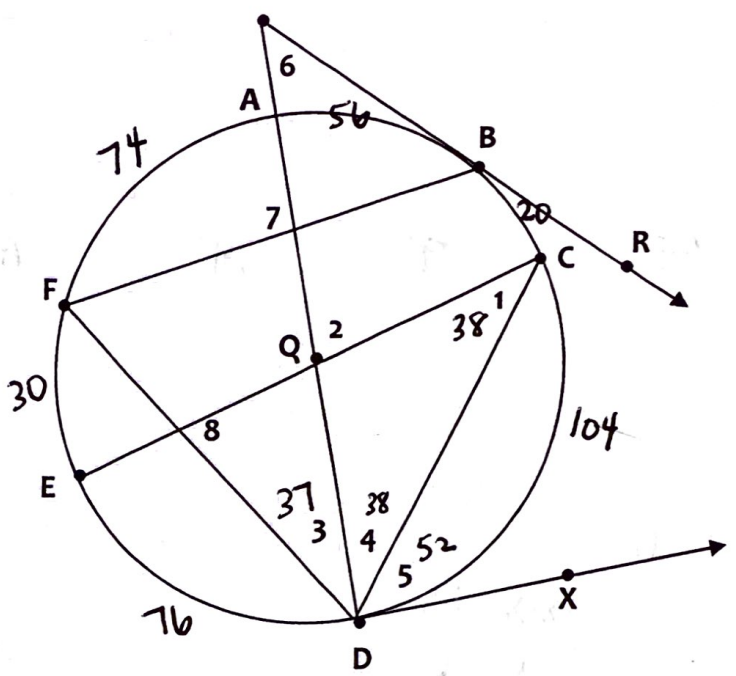
$c = \underline{1.7 \text{ cm}}$

$A = \underline{2.5 \text{ cm}^2}$

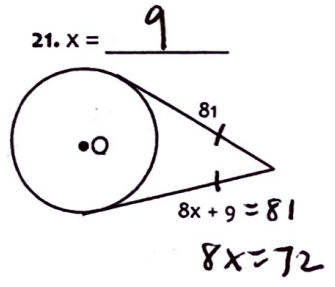
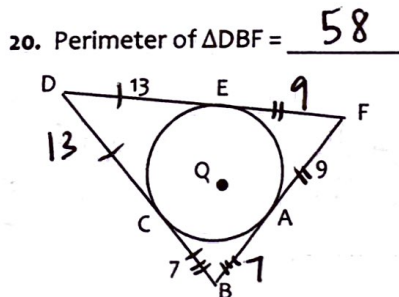
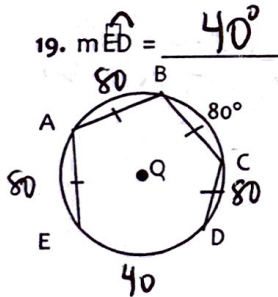
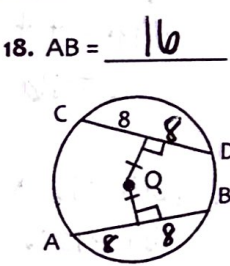
**Target 3:** I can apply properties of circles to find measures of angles or arcs formed by radii, chords, secants, and tangents and I can apply properties of circles to find measures of radii, diameters, chords, secant segments, and tangent segments.

17: Given  $\odot Q$  with tangents  $\overline{BR}$  and  $\overline{DX}$ ,  $m\widehat{BC} = 20^\circ$ ,  $m\widehat{EF} = 30^\circ$ , and  $m\widehat{ED} = 76^\circ$ , find each measure below.

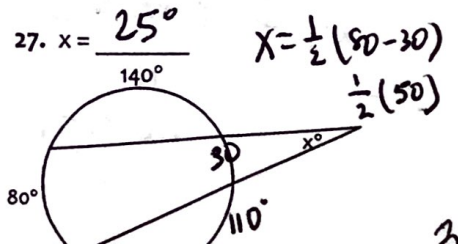
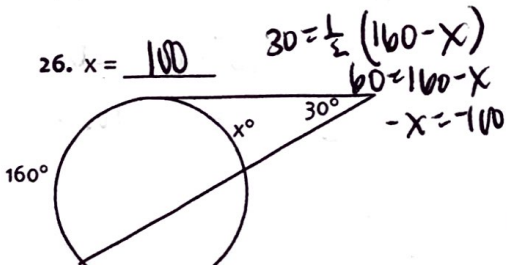
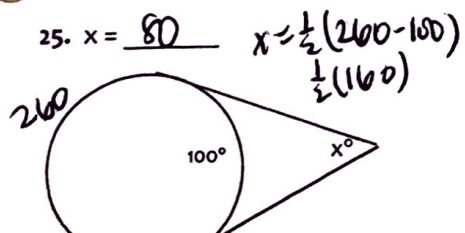
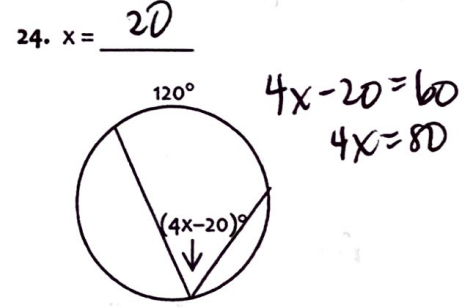
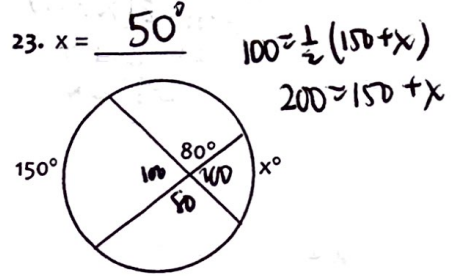
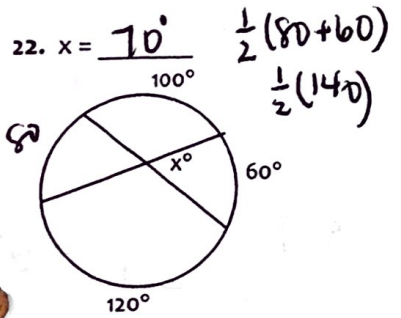
- a.  $m\widehat{FA} = 74^\circ$
- b.  $m\widehat{AB} = 56^\circ$
- c.  $m\widehat{ED} = 104^\circ$
- d.  $m\angle 1 = 38^\circ \quad \frac{1}{2}(76)$
- e.  $m\angle 2 = 76^\circ \quad 56 + 20$
- f.  $m\angle ADX = 90^\circ \quad 38 + 52 / \frac{1}{2}(180)$
- g.  $m\angle FDX = 127^\circ \quad 37 + 38 + 52$
- h.  $m\angle FBR = 115^\circ \quad \frac{1}{2}(230)$
- i.  $m\angle 6 = 34^\circ \quad \frac{1}{2}(124 - 56)$
- j.  $m\angle 7 = 99^\circ \quad \frac{1}{2}(74 + 124)$
- k.  $m\angle 8 = 67^\circ \quad \frac{1}{2}(104 + 30)$



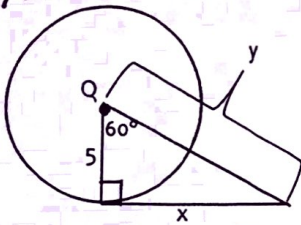
18-21: Given  $\odot Q$ , find each value. All segments that appear to be tangent are tangent.



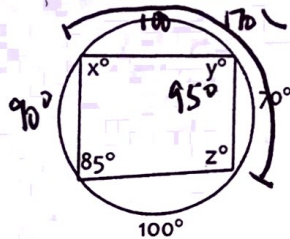
22-30: Find the values of  $x$  and ( $y$  and  $z$ ) in each circle. Write an equation and show your work!



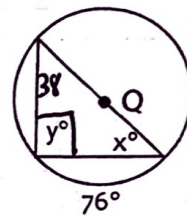
28.  $x = 5\sqrt{3}$   $y = 10$



29.  $x = 85^\circ$   $y = 95^\circ$   $z = 95^\circ$

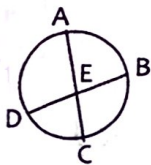


30.  $x = 52^\circ$   $y = 90^\circ$

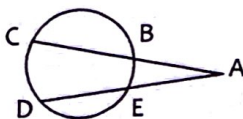


31: Fill in the blanks with the correct segments to complete each formula.

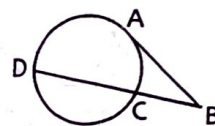
a.  $AE \cdot EC = DE \cdot EB$



b.  $AB \cdot AC = AE \cdot AD$

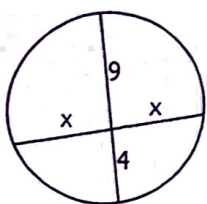


c.  $AB^2 = BC \cdot BD$



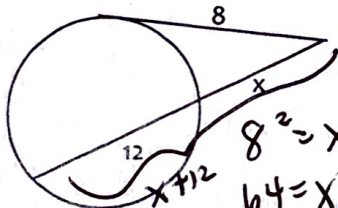
32-37: Find the values of x in each circle. Write an equation and show your work!

32.  $x = 6$



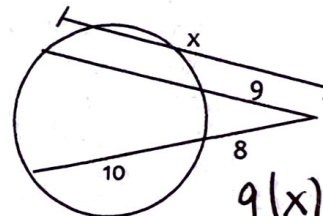
$x \cdot x = 9 \cdot 4$   
 $x^2 = 36$

33.  $x = 4$



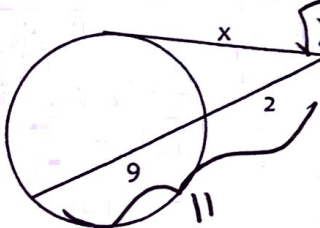
$8^2 = x(x+12)$   
 $64 = x^2 + 12x$   
 $0 = x^2 + 12x - 64$   
 $0 = (x-4)(x+16)$

34.  $x = 16$



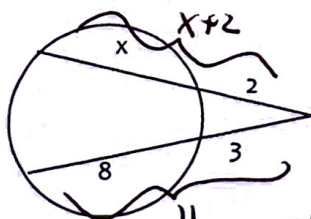
$9(x) = 8(18)$   
 $9x = 144$   
 $x = 16$

35.  $x = 4.7$



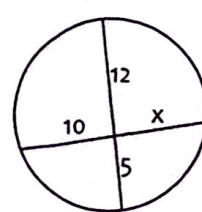
$x^2 = 2(11)$   
 $\sqrt{x^2} = \sqrt{22}$

36.  $x = 14.5$



$3 \cdot 11 = 2(x+2)$   
 $33 = 2x + 4$   
 $29 = 2x$

37.  $x = 6$

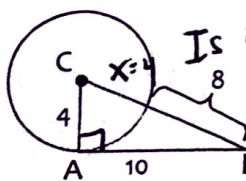


$12 \cdot 5 = 10 \cdot x$   
 $60 = 10x$   
 $x = 6$

38-39: Tell whether AB is tangent to OC (Yes or No). Show Work!

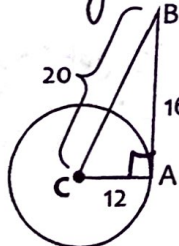
40: AB is a tangent. Find x.

38. no



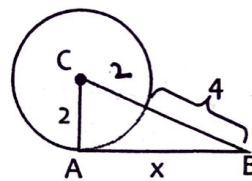
Is  $4^2 + 10^2 = 8^2$   
no  
 $116 \neq 64$

39. yes



$12^2 + 16^2 = 20^2$   
 $400 = 400 \checkmark$

40.  $x = 5.7$



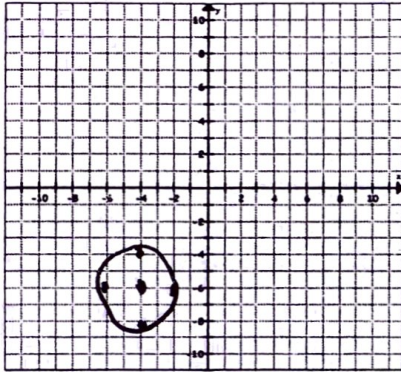
$2^2 + x^2 = 4^2$

**Target 4:** I can write the equation of a circle when given the center and a radius, the center and a point on the circle, or the endpoints of a diameter. I can also graph a circle when given the equation or the center and radius.

**41-42:** Write the equation of the circle with the given information and then graph it.

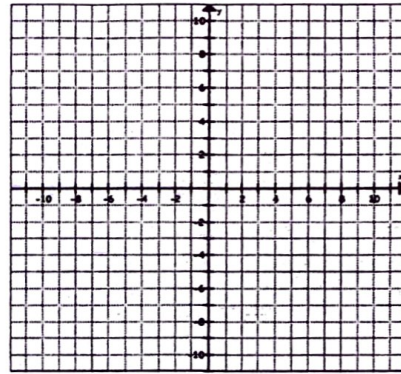
41. Center  $(-4, -6)$  and radius  $= 2$

$$(x + 4)^2 + (y + 6)^2 = 4$$



42. Center  $(0, 3)$  and diameter  $= 14$   $r = 7$

$$x^2 + (y - 3)^2 = 49$$

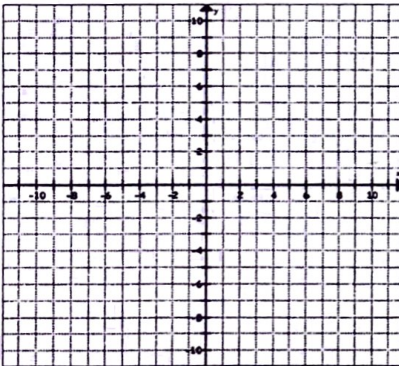


**43-44:** Find the center and the radius of the given equation and then graph it.

43.  $(x - 2)^2 + (y + 3)^2 = 8$

Center:  $(2, -3)$

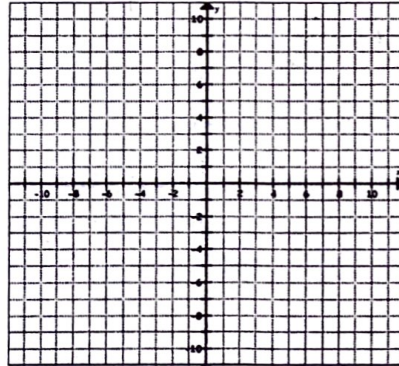
Radius:  $\sqrt{8} = 2.8$



44.  $(x - 4)^2 + y^2 = 16$

Center:  $(4, 0)$

Radius:  $4$

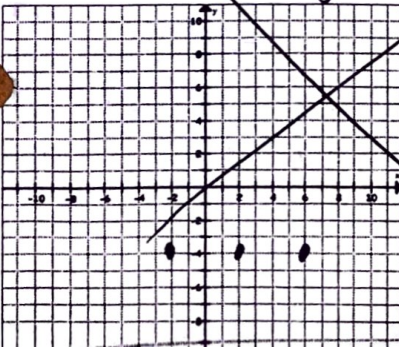


**45-46:** Write the equation of the circle with the given information and then graph it.

~~45. Endpoints of the diameter:  $(-2, -4)$  and  $(6, -4)$~~

~~$$(x - 2)^2 + (y + 1)^2 = 25$$~~

*center = midpoint*



~~46. Center is  $(-3, -2)$  and it is tangent to the y-axis.~~

$r = 3$

~~$$(x + 3)^2 + (y + 2)^2 = 9$$~~

