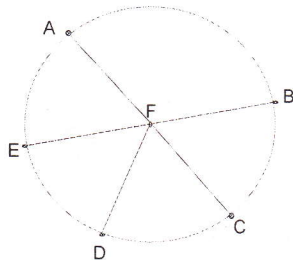


Unit 3 Review Circles and Spheres

\overline{AC} and \overline{BE} are diameters of Circle F. Determine whether the arc is a minor arc, a major arc, or a semicircle of Circle F. Then find the measure of the arc.



Given: $m\angle EFD = 58^\circ$, $m\angle BFC = 60^\circ$

1. \widehat{BC}
minor
 60°

2. \widehat{DC}
minor
 62°

3. \widehat{DB}
minor
 122°

4. \widehat{AE}
minor
 60°

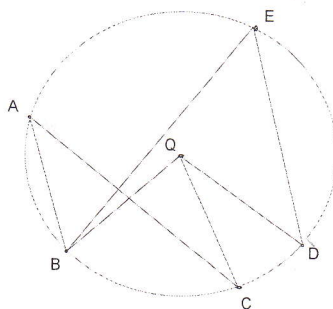
5. \widehat{AD}
minor
 118°

6. \widehat{ABC}
semicircle
 180°

7. \widehat{ACD}
major
 242°

8. \widehat{EAC}
major
 240°

Use Circle Q and the given information to find the indicated measure.



Given: $m\angle BAC = 35^\circ$, $m\widehat{CD} = 28^\circ$

9. \widehat{BC}
 70°

10. $m\angle BQC$
 70°

11. \widehat{BD}
 98°

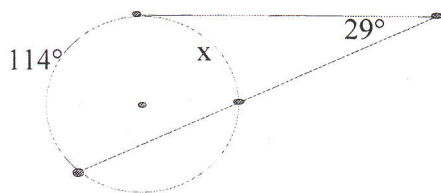
12. $m\angle CQD$
 28°

13. $m\angle BED$
 49°

14. $m\angle BQD$
 98°

Find the value of the variable(s) in each diagram.

15.

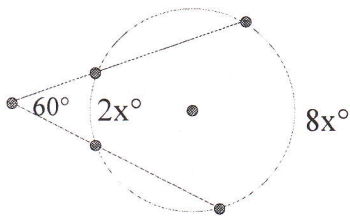


$$29^\circ = \frac{1}{2}(114 - x)$$

$$58 = 114 - x$$

$$x = 56^\circ$$

16.

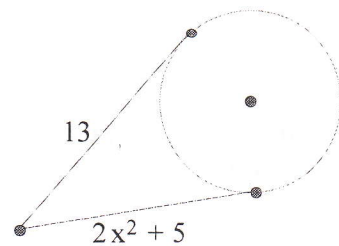


$$60 = \frac{1}{2}(8x - 2x)$$

$$120 = 6x$$

$$x = 20^\circ$$

17.



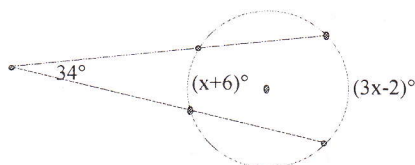
$$2x^2 + 5 = 13$$

$$2x^2 = 8$$

$$x^2 = 4$$

$$x = 2 \text{ or } -2$$

18.



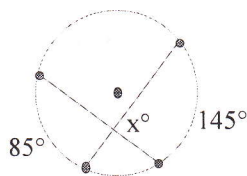
$$34 = \frac{1}{2}(2x - 8)$$

$$68 = 2x - 8$$

$$2x = 76$$

$$x = 38^\circ$$

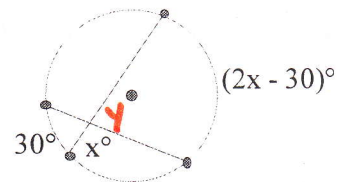
19.



$$x = \frac{1}{2}(145 + 85)$$

$$x = 115^\circ$$

20.

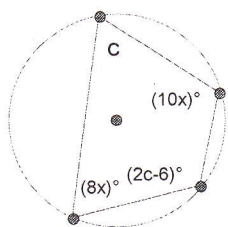


$$y = \frac{1}{2}(2x)$$

$$y = x$$

$$x = 90^\circ$$

21.

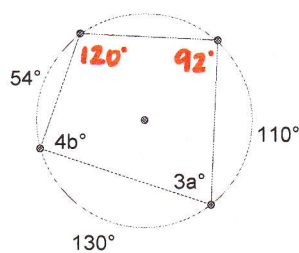


$$3c - 6 = 180 \quad 18x = 180$$

$$3c = 186 \quad x = 10^\circ$$

$$c = 62^\circ$$

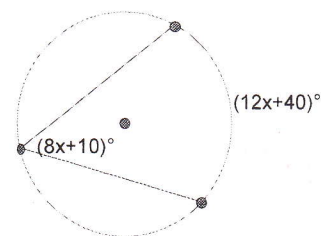
22.



$$3a = 60 \quad 4b = 88$$

$$a = 20^\circ \quad b = 22^\circ$$

23.



$$8x + 10 = \frac{1}{2}(12x + 40)$$

$$8x + 10 = 6x + 20$$

$$2x = 10$$

$$x = 5^\circ$$

Use Circle D to the right. $\angle EDF \cong \angle FDG$. Find the indicated measures.

24. $m \widehat{EFG}$

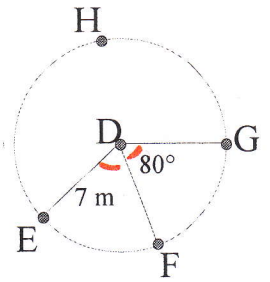
160°

25. $m \widehat{EHG}$

200°

26. length of \widehat{EHG}

$\frac{200}{360} \cdot \pi \cdot 14$
 $= 24.42 \text{ m}$



27. length of \widehat{EFG}

$\frac{160}{360} \cdot \pi \cdot 14$
 $= 19.54 \text{ m}$

28. length of \widehat{FEG}

$\frac{280}{360} \cdot \pi \cdot 14$
 $= 34.19 \text{ m}$

29. $m \widehat{EHF}$

280°

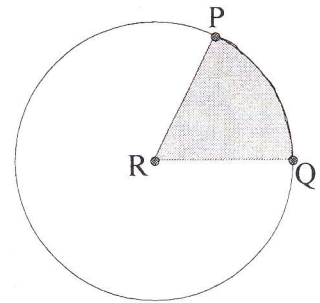
The Area of Circle R = 295.52 sq in. The Area of Sector PRQ = 55 sq in. Find the indicated measures.

30. radius

$\pi r^2 = 295.52$
 $r = 9.7 \text{ in}$

31. Circumference

$C = \pi d = 60.92 \text{ in.}$



32. $m \widehat{PQ}$

$\frac{x}{360} \cdot 295.52 = 55$
 $x = 67^\circ$

33. length of \widehat{PQ}

$\frac{67}{360} \cdot 60.92 = 11.34 \text{ in.}$

34. Perimeter of shaded

$P = 9.7 + 9.7 + 11.34$
 $= 30.74 \text{ in}$

35. Perimeter of unshaded

$P = 9.7 + 9.7 + 49.58$
 $= 68.98 \text{ in.}$

Complete the chart below. Remember to use correct units for each measurement.

Radius of sphere	Circumference of great circle	Surface Area of sphere	Volume of sphere
12 mm	75.36 mm	1808.64 mm^2	7234.56 mm^3
4 in.	25.12 in	200.96 in^2	267.95 in^3
3.5 ft.	21.98 ft.	153.86 ft^2	179.5 ft^3