Geometry Section 15.1: Central Angles and Inscribed Angles
Pg. 661 #1-19

Identify the chord(s), inscribed angle(s), and central angle(s) in the figure. The center of the circles in Exercises 1, 2, and 4 is C.

1. 

Chord(s): $\overline{DE}, \overline{EF}$
Inscribed Angle(s): $\angle DEF$
Central Angle(s): $\angle DCE$

2. 

Chord(s): $\overline{ST}, \overline{SR}, \overline{RT}, \overline{ST}$
Inscribed Angle(s): $\angle LST, \angle LSR, \angle LST, \angle LST, \angle LSR$
Central Angle(s): $\angle LSCU, \angle LTCR$

3. 

Chord(s): $\overline{DGE}, \overline{GFE}, \overline{EFG}$
Inscribed Angle(s): $\angle GDE, \angle DGE, \angle GFE$
Central Angle(s): $\text{None}$

In circle C, $m\overline{DE} = 84^\circ$. Find each measure.

5. $m\angle DGE \ \frac{84^\circ}{2} = 42^\circ$

6. $m\angle EFD = 42^\circ$
The center of the circle is $A$. Find each measure using the appropriate theorems and postulates.

7. $\text{mCE} = 51^\circ + 90^\circ = 141^\circ$

8. $\text{mDF} = 39^\circ + 90^\circ = 129^\circ$

9. $\text{mBEC} = 360^\circ - 39^\circ = 321^\circ$

Find each measure using the appropriate theorems and postulates. $\text{mAC} = 116^\circ$

10. $\text{mBC} = 70^\circ - 140^\circ$

$$116^\circ + 140^\circ + 56^\circ = 312^\circ$$

$$360^\circ - 312^\circ = 48^\circ$$

11. $\text{mAD} = 48^\circ$

The center of the circle is $C$. Find each measure using the appropriate theorems and postulates. $\text{mLM} = 70^\circ$ and $\text{mNP} = 60^\circ$.

12. $\text{mLMNP} = 90^\circ$

$$180^\circ - 70^\circ = 110^\circ = \text{mLP}$$

13. $\text{mLMN} = 85^\circ$

$$110^\circ + 60^\circ = 170^\circ$$

$$\text{mLMN} = \frac{170^\circ}{2} = 85^\circ$$

The center of the circle is $O$. Find each arc or angle measure using the appropriate theorems and postulates.

14. $\text{mBDE} = 90^\circ$

15. $\text{mABD} = \frac{236^\circ}{140 + 96}$

16. $\text{mED} = 40^\circ$

17. $\text{mDBE} = \frac{40^\circ}{2} = 20^\circ$
Represent Real-World Problems  The circle graph shows how a typical household spends money on energy. Use the graph to find the measure of each arc.

18. \( m_{\overline{PO}} \)

\[
7 + 10 + 2 + 6 + 11 + 19 = 55\%
\]

\[
100 - 55 = 45\% 
\]

\[
45\% \text{ of } 360 = (0.45 \times 360) = 162^\circ
\]

19. \( m_{\overline{UPT}} \)

\[
100\% - 10\% = 90\%
\]

\[
90\% \text{ of } 360 = (0.90 \times 360) = 324^\circ
\]