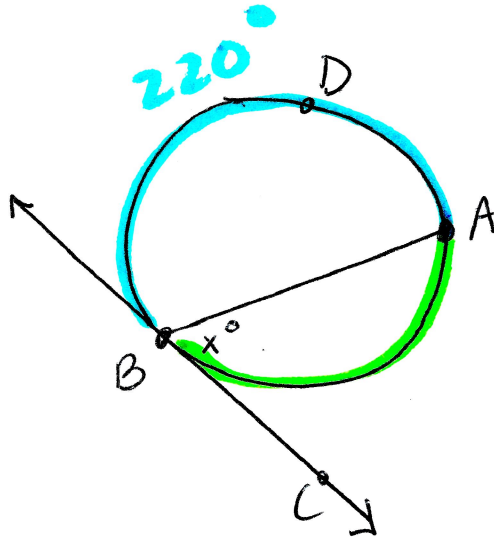


Geo PRACTICE # 23

SOLUTIONS

(1)



$$m\widehat{ADB} = 220^\circ$$

Since $m\angle ABC = \frac{1}{2} m\widehat{AB}$

we'll need to find

$$m\widehat{AB} = 360^\circ - m\widehat{ADB}$$

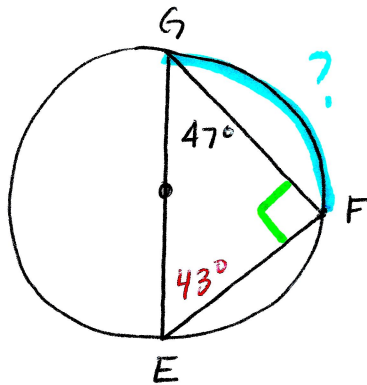
$$= 360^\circ - 220^\circ$$

$$m\widehat{AB} = 140^\circ$$

$$x = m\angle ABC = \frac{1}{2} (140^\circ)$$

$$x = 70^\circ$$

(2)



Since $\overline{GE}$ is a diameter $\angle F$ is inscribed in a semicircle which means $\angle F = 90^\circ$

This means $\angle E = 180^\circ - 47^\circ - 90^\circ$

$$m\angle E = 43^\circ$$

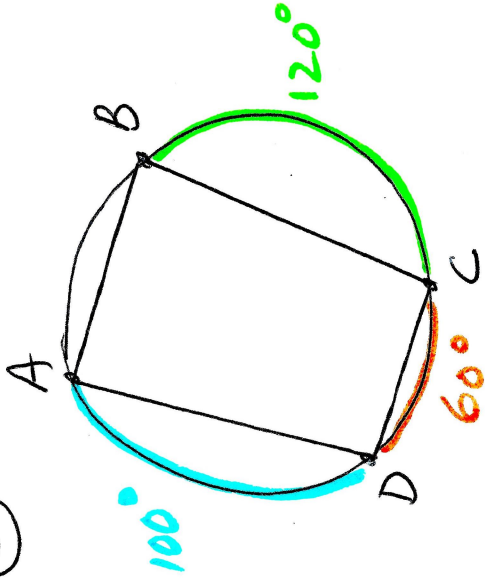
Since $\angle E$ is an inscribed angle that intercepts $\widehat{GF}$

$$m\widehat{GF} = 2 \cdot m\angle E$$

$$= 2(43^\circ)$$

$$m\widehat{GF} = 86^\circ$$

(3)



$$m\angle B = \frac{1}{2}(60 + 100)$$

$$= \frac{1}{2}(160)$$

$$m\angle B = 80^\circ$$

* $\angle B$ & $\angle D$ are opp $\angle$ s, therefore, they are supplementary.

$$m\angle D = 180 - m\angle B$$

$$= 180 - 80$$

$$m\angle D = 100^\circ$$

$$m\angle A = \frac{1}{2}(60 + 120) = \frac{1}{2}(180)$$

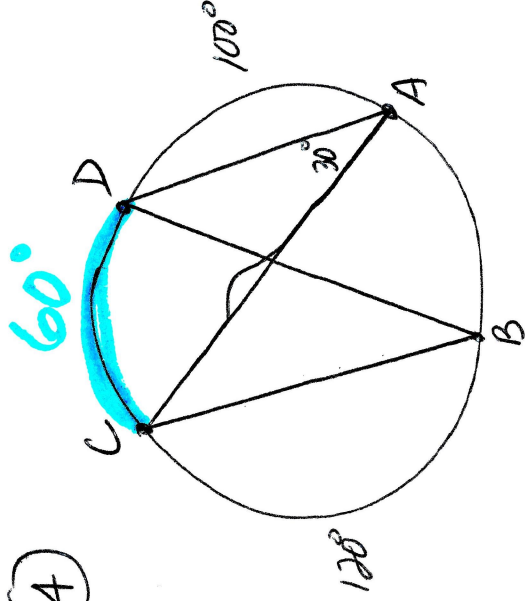
$$m\angle A = 90^\circ$$

* $\angle A$ & $\angle C$ are opp $\angle$ s, therefore, they are supplementary.

$$m\angle C = 180 - m\angle A = 180 - 90$$

$$m\angle C = 90^\circ$$

(4)



• since $\angle A$ & $\angle B$ both intercept the same arc, $\widehat{CD}$, they must be congruent

$$m\angle B = m\angle A = 30^\circ$$

• since $\angle A = 30^\circ$, ~~$m\angle A$~~

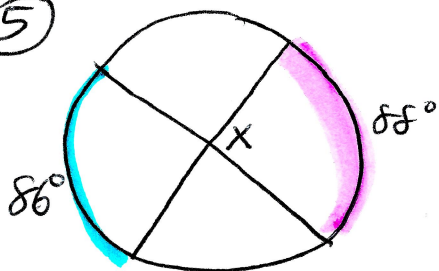
$$m\widehat{CD} = 2 \cdot m\angle A$$

$$= 2(30) = 60^\circ$$

$$m\widehat{AB} = 360 - 100 - 120 - 60$$

$$m\widehat{AB} = 80^\circ$$

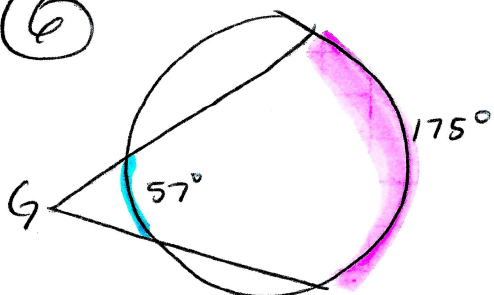
(5)



$$x = \frac{1}{2}(86^\circ + 88^\circ) = \frac{1}{2}(174^\circ)$$

$$x = 87^\circ$$

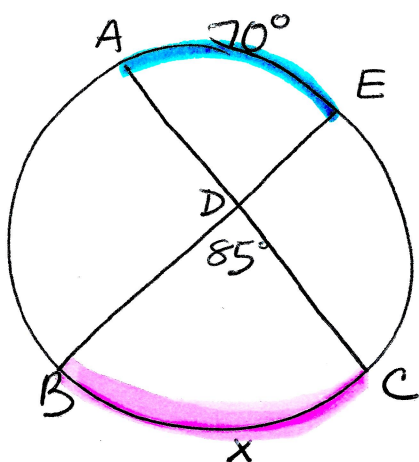
(6)



$$m\angle G = \frac{1}{2}(175^\circ - 57^\circ) = \frac{1}{2}(118)$$

$$m\angle G = 59^\circ$$

(7)



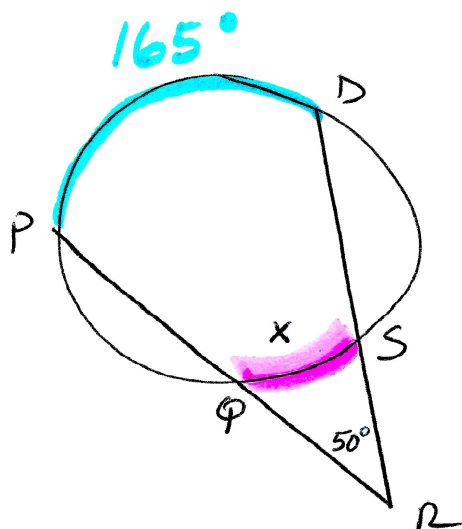
$$85 = \frac{1}{2}(70^\circ + x)$$

$$2 \cdot 85 = \frac{1}{2}(70^\circ + x) \cdot 2$$

$$170 = 70 + x$$

$$m\widehat{BC} = x = 100^\circ$$

(8)



$$50 = \frac{1}{2}(165 - x)$$

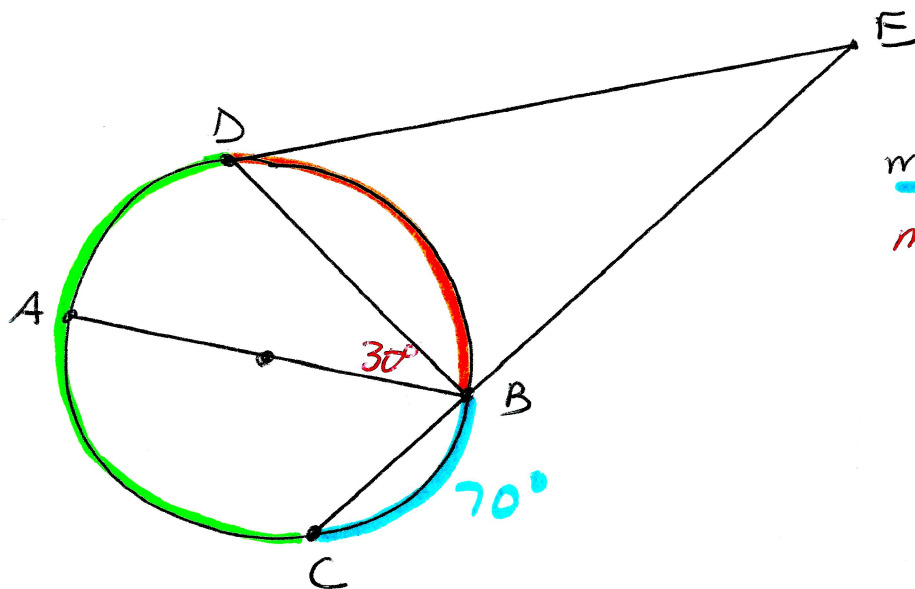
$$2 \cdot 50 = \frac{1}{2}(165 - x) \cdot 2$$

$$100 = 165 - x$$

$$-65 = -x$$

$$m\widehat{QS} = x = 65^\circ$$

(9)



$$m\widehat{BC} = 70^\circ$$

$$m\angle DBA = 30^\circ$$

$$m\angle E = \frac{1}{2} (m\widehat{DCA} - m\widehat{DB})$$

Because $\overline{AB}$ is a diameter
 $\widehat{ADB}$ is a semicircle

$$180^\circ - m\widehat{AD}$$

$$\begin{aligned} m\widehat{DB} &= 180 - 60 \\ &= 120^\circ \end{aligned}$$

$$m\widehat{AD} + m\widehat{AC}$$

$$\begin{aligned} m\widehat{AD} &= 2 \cdot m\angle DBA \\ &= 2(30) \end{aligned}$$

$$m\widehat{AD} = 60^\circ$$

$$m\widehat{DCA}$$

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

$$= 170^\circ$$

Because $\overline{AB}$ is a diameter
 $\widehat{ACB}$ is a semicircle

$$\begin{aligned} \text{and } m\widehat{AC} &= 180 - m\widehat{BC} \\ &= 180 - 70 \end{aligned}$$

$$m\widehat{AC} = 110^\circ$$

$$m\angle E = \frac{1}{2} (170^\circ - 120^\circ)$$

$$= \frac{1}{2} (50)$$

$$m\angle E = 25^\circ$$