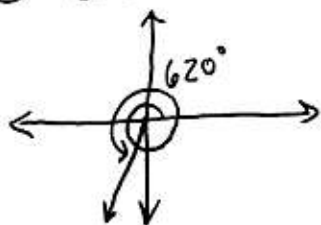


HW 143
5-19-09

§ Section 6.1

③ a) 620°



Positive:

$$620^\circ - 360^\circ = 260^\circ$$

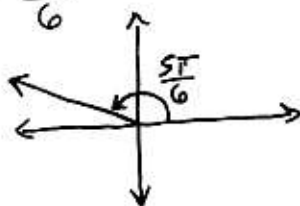
$$620^\circ + 360^\circ = 980^\circ$$

Negative: Twice around is 720°

$$720^\circ - 620^\circ = 100^\circ$$

So -100° and -460°

⑥ b) $\frac{5\pi}{6}$



Positive

$$\frac{5\pi}{6} + 2\pi = \frac{17\pi}{6} \leftarrow \text{One extra revolution counter-clockwise}$$

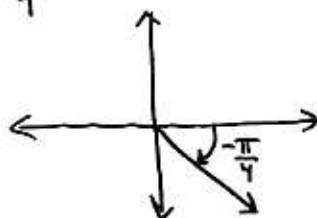
$$\frac{5\pi}{6} + 4\pi = \frac{29\pi}{6} \leftarrow \text{two extra c.c.w. revolutions}$$

Negative

$$2\pi - \frac{5\pi}{6} = \frac{7\pi}{6}$$

$$\text{So } -\frac{7\pi}{6} \text{ or } -2\pi + \frac{7\pi}{6} = -\frac{19\pi}{6} \leftarrow \text{One extra clockwise revolution.}$$

⑦ c) $-\frac{\pi}{4}$



Positive

$$2\pi - \frac{\pi}{4} = \frac{7\pi}{4}$$

$$\frac{7\pi}{4} + 2\pi = \frac{15\pi}{4} \leftarrow \text{One extra c.c.w. revolution.}$$

Negative

$$-\frac{\pi}{4} - 2\pi = -\frac{9\pi}{4} \leftarrow \text{One extra cw revolution}$$

$$-\frac{\pi}{4} - 4\pi = -\frac{17\pi}{4} \leftarrow \text{Two extra cw revolutions}$$

$$\begin{array}{r} \textcircled{5} \textcircled{a} \quad 89^\circ 59' \\ 90^\circ 60' 60'' \\ - 5^\circ 17' 34'' \\ \hline 84^\circ 42' 26'' \\ 84^\circ 42' 26'' \end{array}$$

$$\textcircled{b} \quad 90^\circ - 32.5^\circ = 57.5^\circ$$

$$\begin{array}{r} \textcircled{7} \textcircled{a} \quad \cancel{180^\circ} \\ 179^\circ 59' 60'' \\ - 48^\circ 51' 37'' \\ \hline 131^\circ 8' 23'' \\ 131^\circ 8' 23'' \end{array}$$

$$\textcircled{b} \quad 180^\circ - 136.42^\circ = 43.58^\circ$$

$$\textcircled{9} \textcircled{a} \quad 150^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{6} \quad \textcircled{b} \quad -60^\circ \cdot \frac{\pi}{180^\circ} = -\frac{\pi}{3} \quad \textcircled{c} \quad 225^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{4}$$

$$\textcircled{11} \textcircled{a} \quad 450^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{2} \quad \textcircled{b} \quad 72^\circ \cdot \frac{\pi}{180^\circ} = \frac{2\pi}{5} \quad \textcircled{c} \quad 100^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{9}$$

$$\textcircled{13} \textcircled{a} \quad \frac{2\pi}{3} \cdot \frac{180^\circ}{\pi} = 120^\circ \quad \textcircled{b} \quad \frac{11\pi}{6} \cdot \frac{180^\circ}{\pi} = 330^\circ \quad \textcircled{c} \quad \frac{3\pi}{4} \cdot \frac{180^\circ}{\pi} = 135^\circ$$

$$\textcircled{15} \textcircled{a} \quad -\frac{7\pi}{2} \cdot \frac{180^\circ}{\pi} = -630^\circ \quad \textcircled{b} \quad 7\pi \cdot \frac{180^\circ}{\pi} = 1260^\circ \quad \textcircled{c} \quad \frac{\pi}{9} \cdot \frac{180^\circ}{\pi} = 20^\circ$$

$$\begin{array}{l} \textcircled{17} \quad 2 \cdot \frac{180^\circ}{\pi} \approx 114.5916^\circ \\ \quad \quad \quad 114^\circ 35' 30'' \\ 0.5916 \cdot 60' \approx 35.496' \\ 0.496 \cdot 60'' \approx 30'' \end{array}$$

$$\begin{array}{l} \textcircled{25} \quad 63.169^\circ \\ \quad \quad \quad 0.169 \cdot 60' \approx 10.14' \\ \quad \quad \quad 0.14 \cdot 60'' \approx 8.4'' \\ \quad \quad \quad 63^\circ 10' 8'' \end{array}$$

$$\begin{aligned} \textcircled{29} \quad s &= r\theta \\ 10 &= r \cdot 4 \\ \frac{s}{2} &= r \\ \frac{s}{2} \text{ cm} \end{aligned}$$

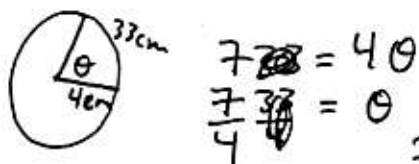
~~\textcircled{31} We must first convert the a~~

\textcircled{31} We must first convert the angle measure to radians.
 $45^\circ \cdot \frac{\pi}{180^\circ} = \frac{\pi}{4}$.

a) $s = r\theta = 8 \cdot \frac{\pi}{4} = 2\pi \text{ cm}$

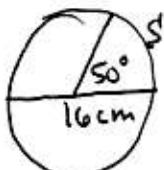
b) $A = \frac{1}{2}r^2\theta = \frac{1}{2}(8)^2 \cdot \frac{\pi}{4} = 8\pi \text{ cm}^2$

\textcircled{33} $s = 7 \text{ cm}$ $r = 4 \text{ cm}$



a) $\frac{7}{4}$ radians. $\frac{7}{4} \cdot \frac{180^\circ}{\pi} = \left(\frac{1485}{\pi}\right)^\circ \left(\frac{315}{\pi}\right)^\circ$

b) $A = \frac{1}{2}r^2\theta = \frac{1}{2}(4)^2 \cdot \frac{7}{4} = 14 \text{ cm}^2$

\textcircled{35}  $d = 16 \text{ cm}$ so $r = 8 \text{ cm}$
 We must also convert the angle to radians

$$50^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{18}$$

a) $s = r\theta = 8 \cdot \frac{5\pi}{18} = \frac{20\pi}{9} \text{ cm}$

b) $A = \frac{1}{2}r^2\theta = \frac{1}{2}(8)^2 \left(\frac{5\pi}{18}\right) = \frac{80\pi}{9} \text{ cm}^2$