

WARMUP

Use your chart to calculate the exact value of:

A) $\sin 870^\circ = \frac{1}{2}$

B) $\cos\left(-\frac{7\pi}{6}\right) = -\frac{\sqrt{3}}{2}$

C) $\tan 1260^\circ = 0$

D) $\csc \frac{25\pi}{3} = \frac{2\sqrt{3}}{3}$

E) $\sec(-390^\circ) = \frac{2\sqrt{3}}{3}$

F) $\cot\left(-\frac{19\pi}{2}\right) = \cot \frac{\pi}{2} = 0$

$$-\frac{7\pi}{6} + \frac{12\pi}{6} = \frac{5\pi}{6}$$

$$\begin{array}{r} 1260 \\ -360 \\ \hline 900 \\ -360 \\ \hline 540 \\ -360 \\ \hline 180 \end{array}$$

$$\frac{25\pi}{3} - \frac{6\pi}{3} = \frac{19\pi}{3} - \frac{6\pi}{3}$$

$$= \frac{13\pi}{3} - \frac{6\pi}{3}$$

$$= \frac{7\pi}{3} - \frac{6\pi}{3}$$

$$\begin{array}{r} -390 \\ +360 \\ \hline -30 \\ +360 \\ \hline 330 \end{array}$$

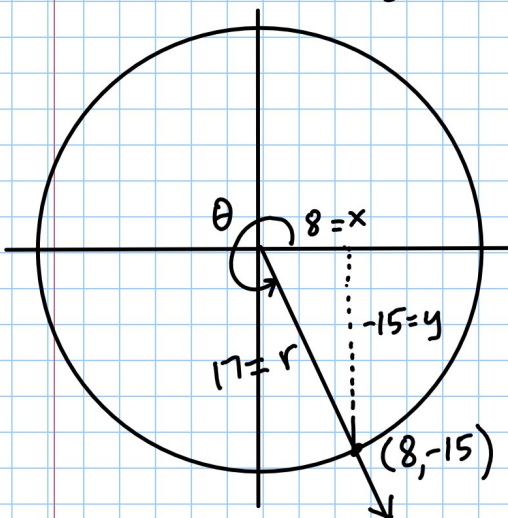
$$= \frac{\pi}{3}$$

$$-\frac{19\pi}{2} + \frac{4\pi}{2}$$

$$-\frac{19\pi}{2} + \frac{4\pi}{2}$$

Section 5.2 CONTINUED

The terminal side of θ passes through the point $(8, -15)$. Find the six trig function values of θ .



$$x^2 + y^2 = r^2$$

$$8^2 + (-15)^2 = r^2$$

$$64 + 225 = r^2$$

$$289 = r^2$$

$$17 = r$$

$$x=8, y=-15, r=17$$

$$\sin \theta = -\frac{15}{17}$$

$$\csc \theta = -\frac{17}{15}$$

$$\cos \theta = \frac{8}{17}$$

$$\sec \theta = \frac{17}{8}$$

If we're not on the unit circle:

$$\sin \theta = \frac{y}{r} \quad \csc \theta = \frac{r}{y}$$

$$\cos \theta = \frac{x}{r} \quad \sec \theta = \frac{r}{x}$$

$$\tan \theta = \frac{y}{x} \quad \cot \theta = \frac{x}{y}$$

$$\tan \theta = -\frac{15}{8}$$

$$\cot \theta = -\frac{8}{15}$$

What quadrant are we in if:

1) $\sin \theta > 0$, $\tan \theta < 0$

Q II

2) $\tan \theta > 0$, $\sec \theta < 0$

Q III

<u>II</u> $x < 0, y > 0$ $\sin \theta, \csc \theta > 0$	<u>I</u> $x > 0, y > 0$ All +
<u>III</u> $x < 0, y < 0$ $\tan \theta, \cot \theta > 0$	<u>IV</u> $x > 0, y < 0$ $\cos \theta, \sec \theta > 0$

Assignment

1) If $(-7, 24)$ lies on the terminal side of θ , find the ^{exact} six trig function values of θ .

2) If $(-3, -7)$ lies on the terminal side of θ , find the exact six trig function values of θ (Rationalize your denominators)

3) Determine which quadrant θ lies in:

A) $\sin \theta < 0$, $\cos \theta > 0$

B) $\cos \theta > 0$, $\tan \theta > 0$

C) $\cos \theta < 0$, $\tan \theta > 0$

D) $\csc \theta > 0$, $\cos \theta < 0$

4) Find exact values using your chart:

A) $\cos 420^\circ$

B) $\sin 390^\circ$

C) $\csc 450^\circ$

D) $\sec 420^\circ$

E) $\sin \frac{9\pi}{4}$

F) $\csc \frac{9\pi}{2}$

G) $\cot \frac{17\pi}{4}$

H) $\sec \frac{25\pi}{6}$