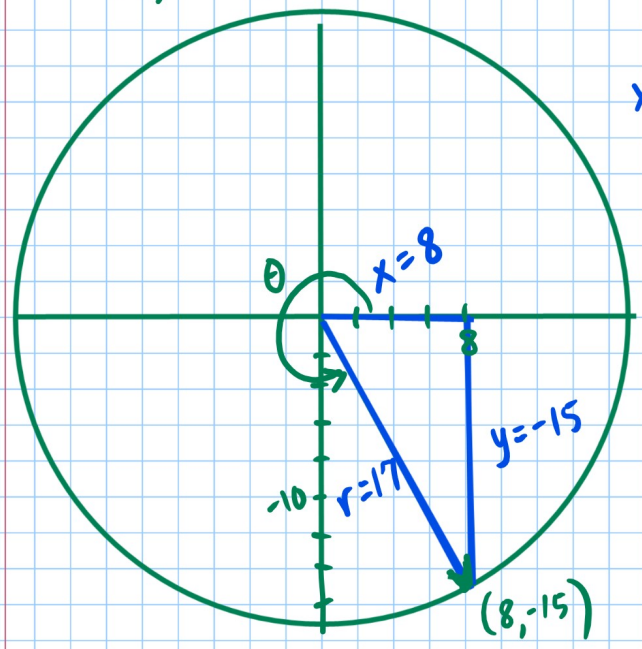
Section 5.2

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



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

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

$64+225=r^2$

$289=r^2$

$r=17$

If we're not on the unit circle, we must use:

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

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

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

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

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

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

Pythagorean Triples

3,4,5

5,12,13

7,24,25

8,15,17

9,40,41

What Quadrant is θ in if:

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

QII

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

QI

Assignment

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

2) If $(-3, -7)$ lies on the terminal side of θ, find the six trig function values of θ. (Leave r in radical form, rationalize denominators)

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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) $\csc\left(-\frac{9\pi}{2}\right)$

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

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