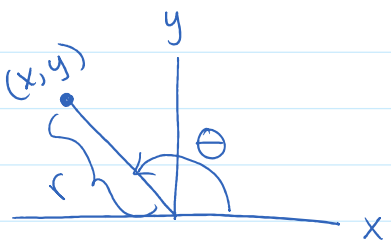
Tuesday, October 16, 2018 8:23 AM

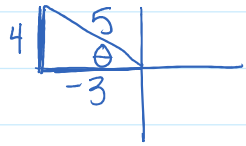
C.4 Notes (4.3 in bk): Trig Functions of any ∠



$\sin\theta = \frac{y}{r}$ $\cos\theta = \frac{x}{r}$ $\tan\theta = \frac{y}{x}$

$\csc\theta = \frac{r}{y}$ $\sec\theta = \frac{r}{x}$ $\cot\theta = \frac{x}{y}$

#1: Let $(-3,4)$ be a point on terminal side of θ. Find $\sin\theta$, $\cos\theta$, $\tan\theta$.



$4^2 + (-3)^2 = r^2$

$16 + 9 = r^2$

$\sqrt{25} = \sqrt{r^2}$

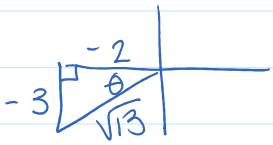
$r = 5$

$\sin\theta = \frac{4}{5}$

$\cos\theta = -\frac{3}{5}$

$\tan\theta = -\frac{4}{3}$

#2: Let $(-2,-3)$ be a point on terminal side of θ. Find $\sin\theta$, $\cos\theta$, $\tan\theta$.



$(-3)^2 + (-2)^2 = r^2$

$9 + 4 = r^2$

$\sqrt{13} = \sqrt{r^2}$

$r = \sqrt{13}$

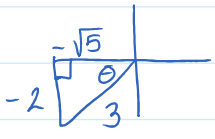
$\sin\theta = \frac{-3}{\sqrt{13}} \cdot \frac{\sqrt{13}}{\sqrt{13}} = \frac{-3\sqrt{13}}{13}$

$\cos\theta = \frac{-2}{\sqrt{13}} \cdot \frac{\sqrt{13}}{\sqrt{13}} = \frac{-2\sqrt{13}}{13}$

$\tan\theta = \frac{-3}{-2} = \frac{3}{2}$

#3: Given $\sin\theta = -\frac{2}{3}$ and $\tan\theta > 0$, find $\cos\theta$ and $\cot\theta$.

③/4 1/③



$(-2)^2 + x^2 = 3^2$

$4 + x^2 = 9$

$-4 \quad -4$

$\sqrt{x^2} = \sqrt{5}$

$x = \sqrt{5}$

$\cos\theta = -\frac{\sqrt{5}}{3}$

$\cot\theta = -\frac{\sqrt{5}}{-2} = \frac{\sqrt{5}}{2}$

#4: Given $\sec\theta = \frac{\sqrt{29}}{5}$ and $\sin\theta > 0$. Find $\sin\theta$, $\csc\theta$, and $\tan\theta$.

$$\sin\theta = \frac{2\sqrt{29}}{29}$$

$$\csc\theta = \frac{\sqrt{29}}{2}$$

$$\tan\theta = \frac{2}{5}$$

#5: The point of a line $2y - x = 0$ lies on the terminal side of θ, where $x < 0$. Find the six trig ratios.

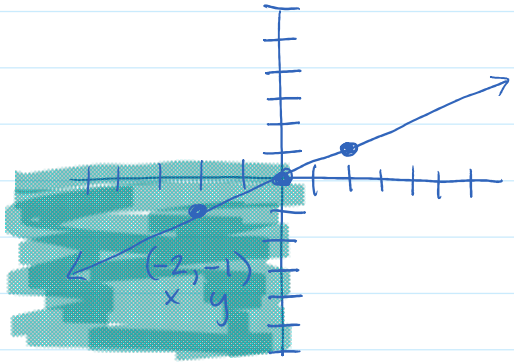
$y = mx + b$

$2y - x = 0$

$+x \quad +x$

$\frac{2y}{2} = \frac{x}{2}$

$y = \frac{1}{2}x$



$(-2)^2 + (-1)^2 = r^2$

$4 + 1 = r^2$

$\sqrt{5} = \sqrt{r^2}$

$r = \sqrt{5}$

$\sin\theta = \frac{-1}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = -\frac{\sqrt{5}}{5}$ $\quad \csc\theta = -\sqrt{5}$

$\cos\theta = \frac{-2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = -\frac{2\sqrt{5}}{5}$ $\quad \sec\theta = -\frac{\sqrt{5}}{2}$

$\tan\theta = \frac{1}{2}$ $\quad \cot\theta = 2$

pg. 251 # 2, 3, 33-35

pg. 268 # 15-18