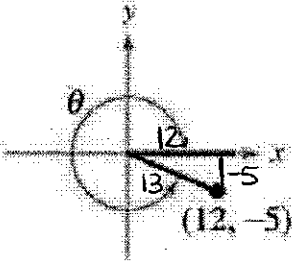
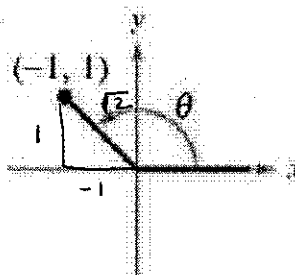


4.4 Worksheet-Day 1

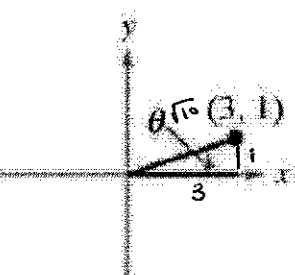
Determine the exact values of the six trigonometric functions of the angle θ .

1.  $r = \sqrt{(12)^2 + (-5)^2}$
 $r = \sqrt{144 + 25}$
 $r = \sqrt{169}$
 $* r = 13$

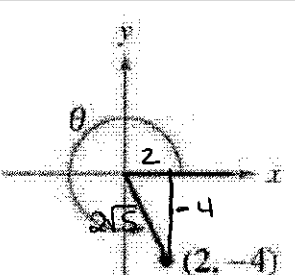
$\sin \theta = \frac{-5}{13}$ $\csc \theta = \frac{-13}{5}$
 $\cos \theta = \frac{12}{13}$ $\sec \theta = \frac{13}{12}$
 $\tan \theta = \frac{-5}{12}$ $\cot \theta = \frac{-12}{5}$

2.  $r = \sqrt{(-1)^2 + (1)^2}$
 $r = \sqrt{1+1}$
 $* r = \sqrt{2}$

$\sin \theta = \frac{\sqrt{2}}{2}$ $\csc \theta = \sqrt{2}$
 $\cos \theta = \frac{-\sqrt{2}}{2}$ $\sec \theta = -\sqrt{2}$
 $\tan \theta = -1$ $\cot \theta = -1$

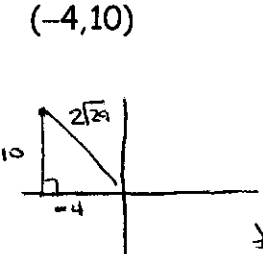
3.  $r = \sqrt{(3)^2 + (1)^2}$
 $r = \sqrt{9+1}$
 $* r = \sqrt{10}$

$\sin \theta = \frac{\sqrt{10}}{10}$ $\csc \theta = \sqrt{10}$
 $\cos \theta = \frac{3\sqrt{10}}{10}$ $\sec \theta = \frac{\sqrt{10}}{3}$
 $\tan \theta = \frac{1}{3}$ $\cot \theta = 3$

4.  $r = \sqrt{(2)^2 + (-4)^2}$
 $r = \sqrt{4+16}$
 $r = \sqrt{20}$
 $* r = 2\sqrt{5}$

$\sin \theta = \frac{-2\sqrt{5}}{5}$ $\csc \theta = \frac{-\sqrt{5}}{2}$
 $\cos \theta = \frac{\sqrt{5}}{5}$ $\sec \theta = \sqrt{5}$
 $\tan \theta = -2$ $\cot \theta = \frac{-1}{2}$

The given point is on the terminal side of an angle in standard position. Determine the exact values of the six trigonometric functions of the angle.

5. $(-4, 10)$  $r = \sqrt{(-4)^2 + (10)^2}$
 $r = \sqrt{16+100}$
 $r = \sqrt{116}$
 $* r = 2\sqrt{29}$

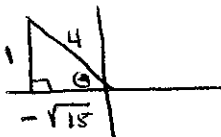
$\sin \theta = \frac{5\sqrt{29}}{29}$ $\csc \theta = \frac{\sqrt{29}}{5}$
 $\cos \theta = \frac{-2\sqrt{29}}{29}$ $\sec \theta = \frac{-\sqrt{29}}{2}$
 $\tan \theta = \frac{-5}{2}$ $\cot \theta = \frac{-2}{5}$

State the quadrant in which θ lies.

6. $\sin\theta < 0$ and $\cos\theta < 0$ III IV II III	Quad III	7. $\sec\theta > 0$ and $\cot\theta < 0$ I IV II IV	QuAD IV
8. $\cot\theta > 0$ and $\cos\theta > 0$ I III I IV	QuAD I	9. $\tan\theta > 0$ and $\csc\theta < 0$ I III III IV	QuAD III

Find the values of the six trigonometric functions of θ .

10. $\csc\theta = 4$ and $\cot\theta < 0$ QUAD II
I II II IV

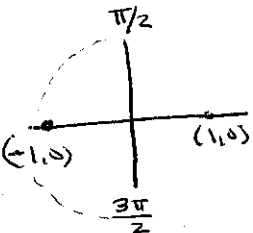


$x = \sqrt{4^2 - (1)^2}$
 $x = \sqrt{16 - 1}$
 $x = \sqrt{15}$
 $\neq x = -\sqrt{15}$

$\sin\theta = \frac{1}{4}$
 $\cos\theta = \frac{-\sqrt{15}}{4}$
 $\tan\theta = \frac{-\sqrt{15}}{15}$

$\csc\theta = 4$
 $\sec\theta = \frac{-4\sqrt{15}}{15}$
 $\cot\theta = -\sqrt{15}$

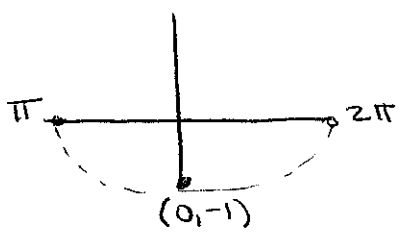
11. $\sin\theta = 0$ and $\frac{\pi}{2} \leq \theta \leq \frac{3\pi}{2}$ * QUADRANTAL



$\sin\theta = 0$
 $\cos\theta = -1$
 $\tan\theta = 0$

$\csc\theta = \text{und.}$
 $\sec\theta = -1$
 $\cot\theta = \text{und.}$

12. $\tan\theta$ is undefined and $\pi \leq \theta \leq 2\pi$ * QUADRANTAL



$\sin\theta = -1$
 $\cos\theta = 0$
 $\tan\theta = \text{und.}$

$\csc\theta = -1$
 $\sec\theta = \text{und.}$
 $\cot\theta = 0$

Evaluate the trigonometric function of the quadrantal angle.

13. $\sec\pi$ (-1, 0) $\cos\pi = -1$ Sec $\pi = -1$	14. $\tan\left(\frac{\pi}{2}\right)$ (0, 1) $\tan\frac{\pi}{2} = \text{und.}$	15. $\cot\left(\frac{3\pi}{2}\right)$ (0, -1) $\tan\frac{3\pi}{2} = \text{und.}$ cot $\frac{3\pi}{2} = 0$	16. $\csc(0)$ (1, 0) $\sin 0 = 0$ CSC $\theta = \text{und.}$
17. $\sec 0$ (1, 0) $\cos 0 = 1$ Sec $0 = 1$	18. $\csc\left(\frac{3\pi}{2}\right)$ (0, -1) $\sin\frac{3\pi}{2} = -1$ CSC $\frac{3\pi}{2} = -1$	19. $\cot(\pi)$ (-1, 0) $\tan\pi = \frac{0}{1}$ Cot $\pi = \text{und.}$	20. $\csc\frac{\pi}{2}$ (0, 1) $\sin\frac{\pi}{2} = 1$ CSC $\frac{\pi}{2} = 1$