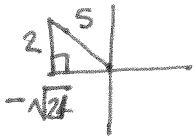
Name Mine Date _____

Math 112: Quiz 6.3, 6.4:

show any relevant work.

1. If $\sin\theta = \frac{2}{5}$ and $\cos\theta < 0$, find the value of the other 5 elementary trigonometric functions at θ. Draw a sketch with appropriate reference triangle.

$\sin\theta = \frac{2}{5}$ $\csc\theta = \frac{5}{2}$



$\cos\theta = -\frac{\sqrt{21}}{5}$ $\sec\theta = -\frac{5\sqrt{21}}{21}$

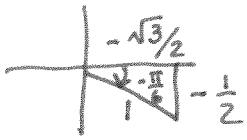
$2^2 + b^2 = 5^2$
$4 + b^2 = 25$
$b^2 = 21$
$b = \sqrt{21}$
$= -\sqrt{21}$ since $\cos\theta < 0$

$\tan\theta = -\frac{2\sqrt{21}}{21}$ $\cot\theta = -\frac{\sqrt{21}}{2}$

2. Find the exact value of each of the following. Include a circle sketch and reference triangle.

a) $\tan(-\frac{\pi}{6})$

$= -\frac{\sqrt{3}}{3}$



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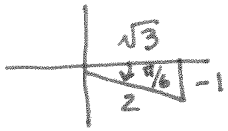
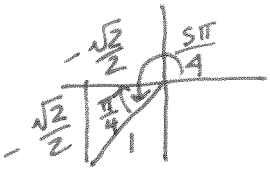


b. $\csc(\frac{5\pi}{4})$

$= -\frac{\sqrt{2}}{1} = -\sqrt{2}$



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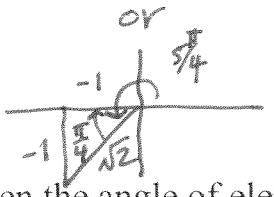
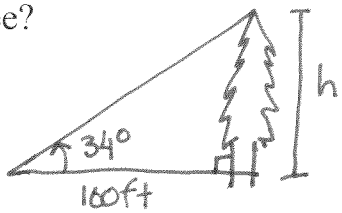


3. A ponderosa pine casts a shadow of 160 ft on level ground when the angle of elevation to the sun is 34°. How tall is the tree?

$\sin 34° = \frac{h}{160}$

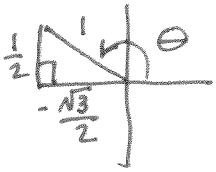
$160 \sin 34° = h = 89.5$ ft



4. Find the exact value of each of the following. Include a reference triangle.

a) $\cos^{-1}(-\frac{\sqrt{3}}{2}) = \theta$

$\theta = \frac{5\pi}{6}$

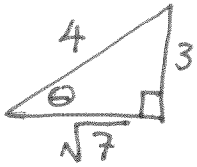


b) $\cos(\sin^{-1}(\frac{3}{4}))$

$\sin^{-1} 3/4 = \theta$

so $\sin\theta = 3/4$

$\cos\theta = \frac{\sqrt{7}}{4}$



$3^2 + b^2 = 4^2$
$9 + b^2 = 16$
$b^2 = 7$