Trigonometry

Quiz 2 --- a re-quiz experience . . . .

~~**Sept 17, 2009**~~ **Sept 25, 2009**

Covering A1 – A5

Name KEY

1. An angle θ in standard position whose measure is 697.27*radians* has its terminal side in which quadrant.?

IV

$\frac{697.27 \text{ radians}}{1} \cdot \frac{1 \text{ circle}}{2\pi \text{ radians}} = 110.97$

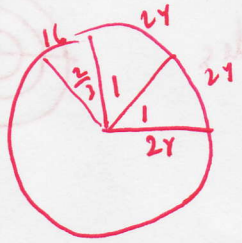
2. Consider an angle θ in standard position whose measure is -690°. What is the measure of this angle in radians? Give the exact value, not a decimal approximation.

$\frac{-690^\circ}{1} \cdot \frac{\pi}{180^\circ} = \frac{-23\pi}{6}$

3. Determine correct to 4 decimal places: cot(-21.4 radians). Note that the angle is a negative quantity. A calculator might prove helpful.

$\frac{1}{\tan(-21.4 \text{ rad})} \approx 1.49$

4. Find the radian measure of the central angle of a circle whose radius is 24 cm that intercepts an arc of length 64 cm.

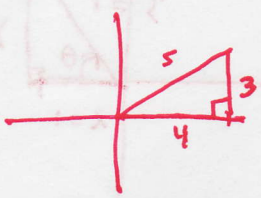


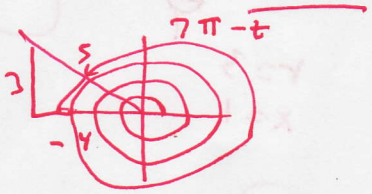
$2\frac{2}{3}$

or $s = r\theta$, $\frac{s}{r} = \theta$, $\frac{8}{3} = \frac{64}{24} =$

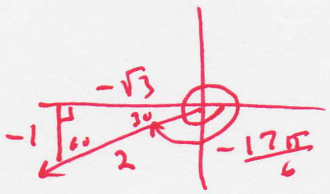
5. Suppose $\cos(t) = \frac{4}{5}$, and further suppose if t is drawn in standard position, the terminal side of t lies in quad I. Use this fact to determine $\tan(7\pi - t)$.

$-\frac{3}{4}$



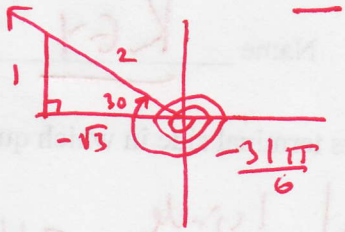


6. Determine $\csc\left(\frac{-17\pi}{6}\right)$. Please give the exact value, not a decimal approximation.



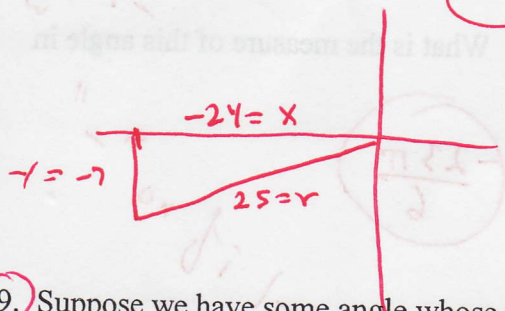
$\csc\left(\frac{-17\pi}{6}\right) = \frac{r}{y} = \frac{2}{-1} = -2$

7. Determine the exact value of $\tan(\frac{-31\pi}{6})$. Please give the exact value, not a decimal approximation.



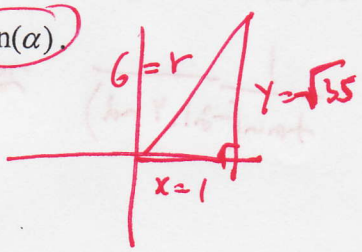
$\frac{-1}{\sqrt{3}} = \frac{-\sqrt{3}}{3}$

8. Consider an angle θ in standard position. Suppose the terminal side of the angle passes through the point (-24,-7). Find the exact value of the secant of this angle.



$\sec\theta = \frac{r}{x} = \frac{25}{-24}$

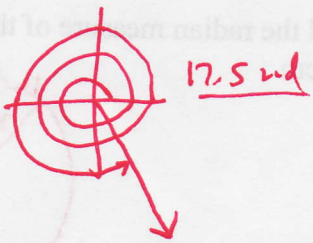
9. Suppose we have some angle whose name is α and our good friend α is in standard position and α's terminal side is in the first quadrant. Suppose further that we know that $\cos(\alpha) = \frac{1}{6}$. Use your trigonometric talents to their fullest to determine $\sin(\alpha)$.



$\sin(\alpha) = \frac{y}{r} = \frac{\sqrt{35}}{6}$

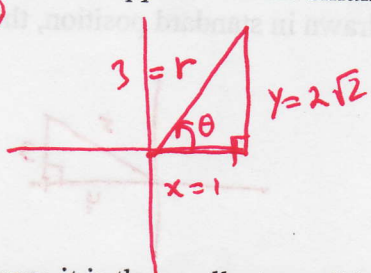
10. Draw an angle of 17.5 radians in standard position.

$17.5 \text{ rad} \left| \frac{1 \text{ circle}}{2\pi \text{ rad}} \right. = 2.785 \text{ circles}$



11. Suppose θ is a positive angle, and suppose it is the smallest possible positive angle which can be such that $\sec(\theta) = 3$. What is $\csc(\theta)$?

$r = 3$
$x = 1$



$\csc\theta = \frac{r}{y} = \frac{3}{2\sqrt{2}} = \frac{3\sqrt{2}}{4}$

Bonus 1. Does the phrase "suppose it is the smallest possible" need to be included in the instructions on problem 11: Explain fully.

NO