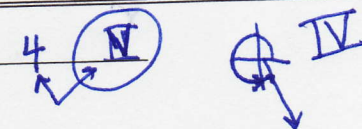


Trigonometry Quiz I

Most of these questions are recall, but show work where possible.
Each numbered problem is 5 points

Name KGY
Block 1/3
Date 9-4-09

1. An angle of $\frac{13\pi}{8}$ in standard position terminates in which quadrant?



For problems 2 and 3 convert each degree measure into radian measure.

2. $-60^\circ = -\frac{\pi}{3}$ radians

Handwritten work: $-60^\circ \times \frac{\pi}{180^\circ} = -\frac{\pi}{3}$

3. $405^\circ = \frac{9\pi}{4}$ radians

Handwritten work: $405^\circ = 360^\circ + 45^\circ = \frac{360}{180} \times \pi + \frac{45}{180} \times \pi = 2\pi + \frac{\pi}{4} = \frac{8\pi}{4} + \frac{\pi}{4} = \frac{9\pi}{4}$

For problem 4 convert the given radian angle measure to degree measure. Give the exact value; do not give a decimal approximation.

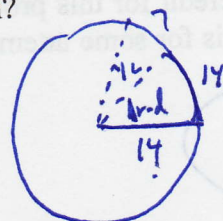
4. $-\frac{7\pi}{12} = -105^\circ$

Handwritten work: $-\frac{7\pi}{12} \times \frac{180}{\pi} = -105^\circ$

Handwritten work: $-\frac{7\pi}{12} \times \frac{180}{\pi} = -105^\circ$

5. In a particular circle, the radius has length of 14 meters. A central angle of 1.5 radians would cut off an arc length that is of what length?

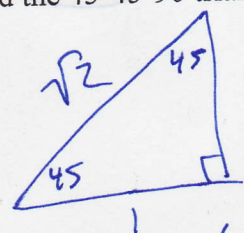
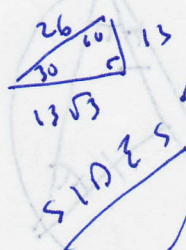
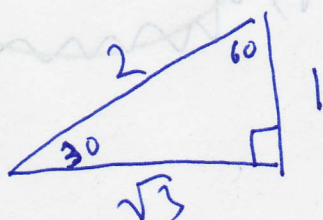
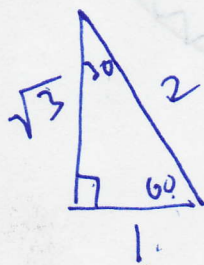
21m



$s = r\theta$

$= 1.5 \times 14 = 21$

6-7 In the space below, draw and correctly label the 30-60-90 and the 45-45-90 triangles.



SOH-CAH-TOA

8. In terms of adjacent leg, opposite leg and hypotenuse, define the following trigonometric functions:

$\sin(\theta) = \frac{\text{opp}}{\text{hyp}}$

$\tan(\theta) = \frac{\text{opp}}{\text{adj}}$

$\sec(\theta) = \frac{\text{hyp}}{\text{adj}}$

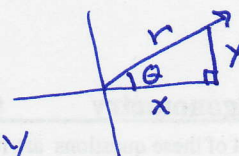
S04-1AH-70A

9. In terms of x , y , and r , define the following trigonometric functions:

$$\cos(\theta) = \frac{x}{r}$$

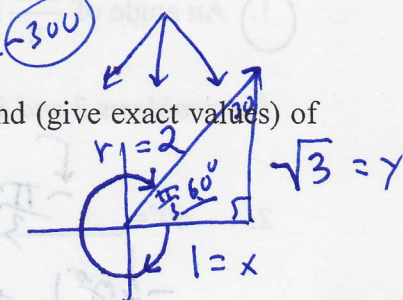
$$\cot(\theta) = \frac{x}{y}$$

$$\sin(\theta) = \frac{y}{r}$$



10. Suppose θ is an angle in standard position with a measure of $\frac{-5\pi}{3}$. Find (give exact values) of

$$\sin(\theta) = \frac{\sqrt{3}}{2}, \cos(\theta) = \frac{1}{2}, \text{ and } \tan(\theta) = \sqrt{3}$$



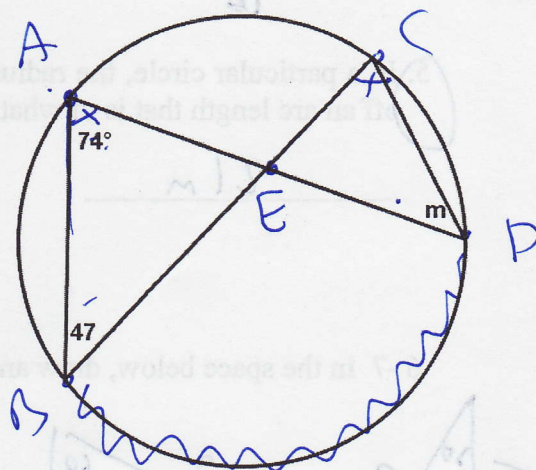
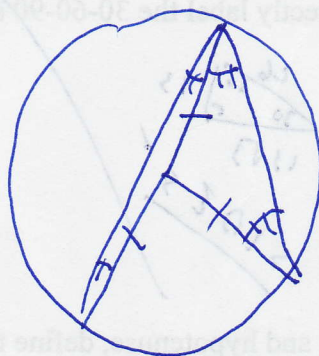
11. Add these fractions, remembering to find a common denominator. $\frac{x}{x+5} + \frac{3}{x-2}$

$$\frac{x^2 + x + 5}{(x+5)(x+2)} = \frac{x^2 - 2x + 3x + 5}{(x+5)(x-2)} \leftarrow \frac{x(x-2) + 3(x+5)}{(x+5)(x-2)}$$

$$\frac{4 \times 2 + 3}{2} = \frac{5}{2}$$

12. Consider the exciting circle shown at the right. Find the measure of $\angle m$. Outline as much of your chain of reasoning as you are able. Half the credit for this problem is for the numerical answer, and half is for some attempt at producing a chain of reasoning.

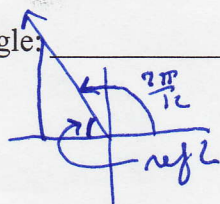
$$47^\circ$$



Bonus:

(i) An angle of $20,000,000,000^\circ$ will terminate in which quadrant? III

(ii) Suppose θ is an angle in standard position with a measure of $\frac{7\pi}{12}$ what is the radian measure of it's reference angle: $\frac{5\pi}{12}$



$$\frac{7\pi}{12} \rightarrow 105^\circ \rightarrow 75^\circ \rightarrow \frac{5\pi}{12}$$