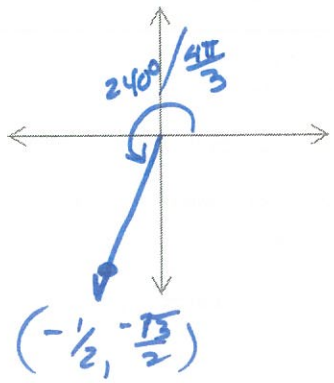
Precalculus

Right Triangle/Unit Circle Trigonometry Review

Name: KEY Date:_____

1. Given $\theta = 240°$

   a. Sketch the angle in standard position.



   b. Convert θ from degrees to radians. $\frac{4\pi}{3}$

   c. Find a positive and a negative coterminal angle. Express each answer in degrees and radians.

$$\begin{array}{r} 240 \\ +\ 360 \\ \hline 600 \end{array} \qquad \begin{array}{r} 360 \\ 240 \\ \hline -120 \end{array}$$

Positive coterminal angle:	$600°$ Degrees	$\frac{10\pi}{3}$ Radians	$\frac{4\pi}{3} + \frac{6\pi}{3}$
Negative coterminal angle:	$-120°$ Degrees	$-\frac{2\pi}{3}$ Radians	$\frac{4\pi}{3} - \frac{6\pi}{3}$

   d. Find all six trigonometric functions of θ.

$\sin\theta = -\frac{\sqrt{3}}{2}$ $\csc\theta = -\frac{2\sqrt{3}}{3}$

$\cos\theta = -\frac{1}{2}$ $\sec\theta = -2$

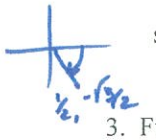
$\tan\theta = \sqrt{3}$ $\cot\theta = \frac{\sqrt{3}}{3}$

2. Find the value of the indicated trigonometric functions for:

a. $\theta = \frac{17\pi}{6}$

$\sin\theta = \frac{1}{2}$ $\cos\theta = \frac{-\sqrt{3}}{2}$ $\tan\theta = -\frac{\sqrt{3}}{3}$

b. $\theta = \frac{-13\pi}{3}$



$\sin\theta = \frac{-\sqrt{3}}{2}$ $\cos\theta = \frac{1}{2}$ $\tan\theta = -\sqrt{3}$

3. Find the value of the indicated trigonometric functions for:

a. $\theta = \frac{15\pi}{4}$

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

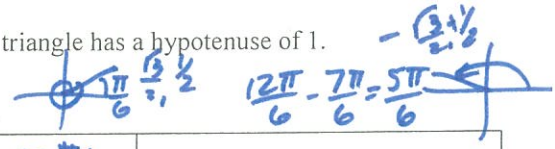
$\csc\theta = -\sqrt{2}$ $\sec\theta = \sqrt{2}$ $\cot\theta = -1$

b. $\theta = -\frac{17\pi}{3}$

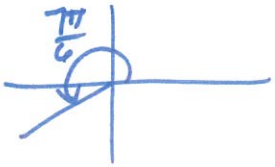
$\sin\theta = \frac{1}{2}$ $\cos\theta = \frac{\sqrt{3}}{2}$ $\tan\theta = \frac{\sqrt{3}}{3}$

$\csc\theta = 2$ $\sec\theta = \frac{2\sqrt{3}}{3}$ $\cot\theta = \sqrt{3}$

4. Using special right triangles find value of the following trigonometric function. Each triangle has a hypotenuse of 1. In this scenario $x = \frac{7\pi}{6}$.



Function/Angle	$\pi - x$ $\frac{-\pi}{6}$	$\pi + x$ $\frac{6\pi}{6} + \frac{7\pi}{6}$ $\frac{13\pi}{6}$	$2\pi - x$
Sine	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Cosine	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{3}}{2}$
Tangent	$-\frac{\sqrt{3}}{3}$	$\frac{\sqrt{3}}{3}$	$-\frac{\sqrt{3}}{3}$
Cosecant	-2	2	2
Secant	$\frac{2\sqrt{3}}{3}$	$\frac{2\sqrt{3}}{3}$	$-\frac{2\sqrt{3}}{3}$
Cotangent	$-\sqrt{3}$	$\sqrt{3}$	$-\sqrt{3}$



$\pi - \frac{7\pi}{6} = -\frac{\pi}{6}$

$\frac{6\pi}{6} - \frac{7\pi}{6}$

$\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$

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