

Name: Key Period: _____

PC5-Review (The first question on the test will be to complete the entire unit circle)

1) Convert from degrees to radians. Express your answer as a multiple of π .

$$1690^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{1690\pi}{180} = \frac{169\pi}{18}$$

2) Convert from DMS to decimal degrees.

$$17^\circ 33' 42''$$

$$33' \left(\frac{1^\circ}{60'} \right) = .55^\circ$$

$$42'' \left(\frac{1'}{60} \right) \left(\frac{1^\circ}{60} \right) = 0.01167$$

$$17 + 0.55 + 0.01167 = 17.56167^\circ$$

3) Convert from decimal degrees to DMS.

$$29.411^\circ$$

$$.411 \left(\frac{60'}{1^\circ} \right) = 24.66'$$

$$.66' \left(\frac{60''}{1'} \right) = 39.6''$$

$$29^\circ 24' 39.6''$$

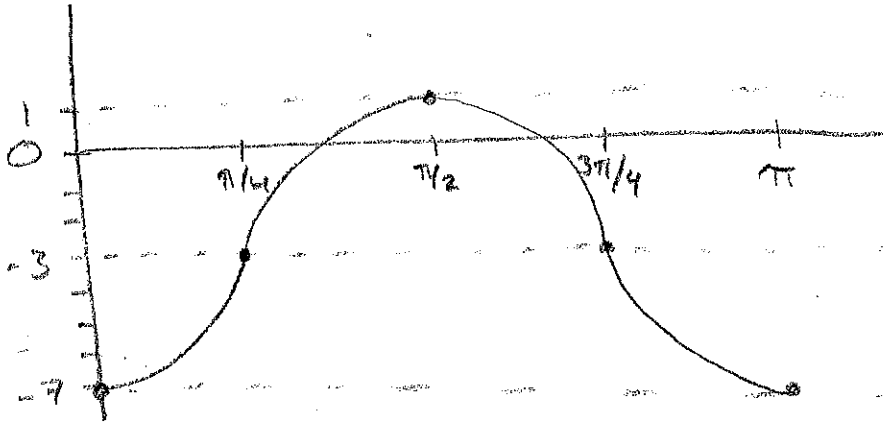
4) Convert from radians to degrees.

$$\frac{-27\pi}{5}$$

$$\frac{-27(180)}{5} = \frac{-4860}{5} = -972^\circ$$

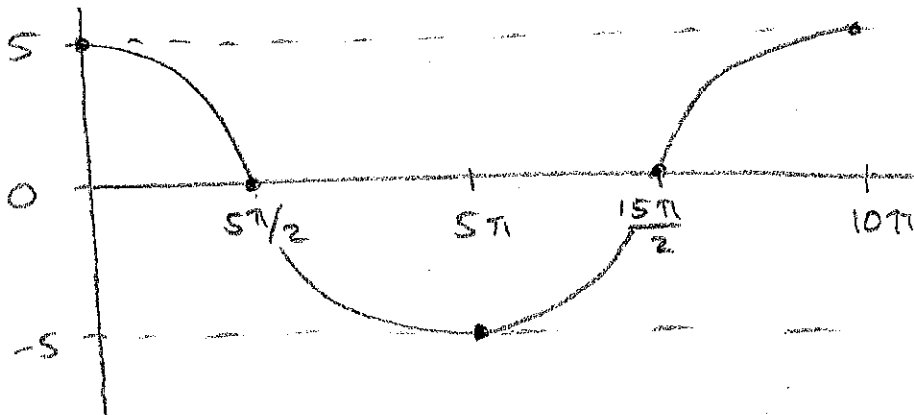
5) Graph one cycle of the function $f(x)$.

$$f(x) = 4 \cos \left(2 \left(x + \frac{\pi}{2} \right) \right) - 3$$



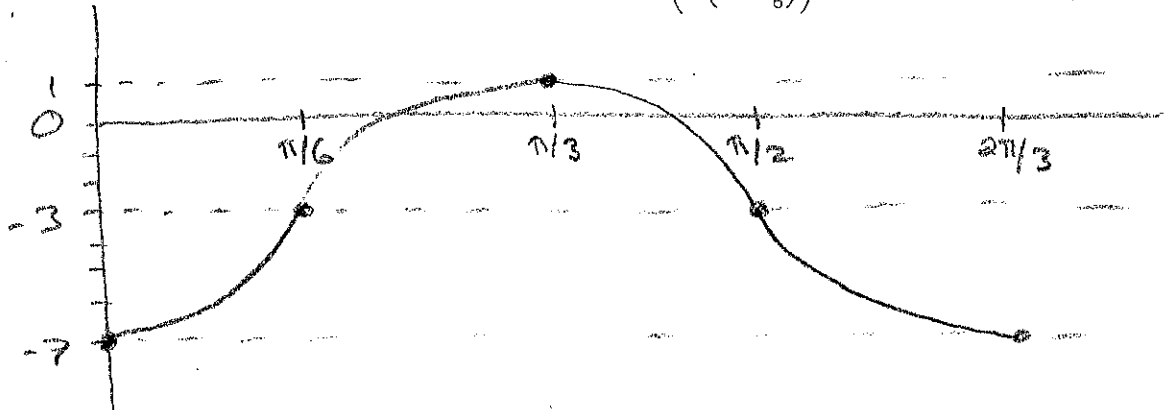
6) Graph one cycle of the function $g(x)$.

$$g(x) = -5 \cos \left(\frac{1}{5} (x - 5\pi) \right)$$

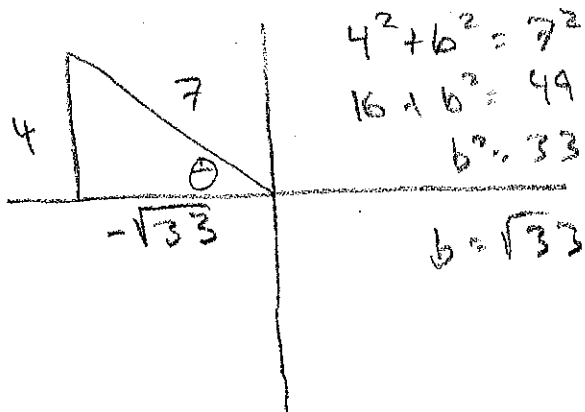


7) Graph one cycle of the function $h(x)$.

$$h(x) = -4 \sin \left(3 \left(x + \frac{\pi}{6} \right) \right) - 3$$

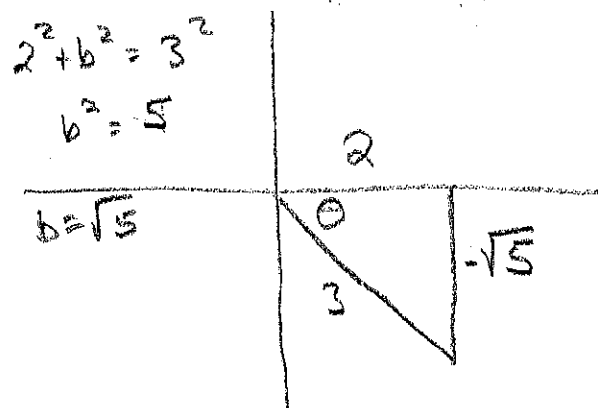


8) Given $\sin \theta = \frac{4}{7}$ and $\tan \theta < 0$, Draw a reference triangle and find the value of all six trig functions.



$\sin \theta = \frac{4}{7}$	$\csc \theta = \frac{7}{4}$
$\cos \theta = \frac{-\sqrt{33}}{7}$	$\sec \theta = \frac{7}{\sqrt{33}} = \frac{-7\sqrt{33}}{33}$
$\tan \theta = \frac{4}{\sqrt{33}} = \frac{-4\sqrt{33}}{33}$	$\cot \theta = \frac{\sqrt{33}}{4}$

9) Given $\cos \theta = \frac{2}{3}$ and $\csc \theta < 0$, Draw a reference triangle and find the value of all six trig functions.



$\sin \theta = \frac{-\sqrt{5}}{3}$	$\csc \theta = \frac{-3}{\sqrt{5}} = \frac{-3\sqrt{5}}{5}$
$\cos \theta = \frac{2}{3}$	$\sec \theta = \frac{3}{2}$
$\tan \theta = \frac{-\sqrt{5}}{2}$	$\cot \theta = \frac{-2}{\sqrt{5}} = \frac{-2\sqrt{5}}{5}$

10) Find an equation of a negative cosine function with amplitude=6, period= π , passing through the point $(\frac{2\pi}{3}, 4)$.

$$y = -6 \cos\left(2\left(x - \frac{2\pi}{3}\right)\right) + 10$$

11) Find an equation of a positive cosine function with amplitude=3, period= 6π , passing through the point $(\frac{19\pi}{13}, 32)$.

$$y = 3 \cos\left(\frac{1}{3}\left(x - \frac{19\pi}{13}\right)\right) + 29$$

Find the exact value of each expression below.

12) $\sin \frac{\pi}{6}$

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

13) $\cos\left(-\frac{5\pi}{4}\right) - \cos \frac{3\pi}{4}$

$$= \frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{2}}{2}\right) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} = \sqrt{2}$$

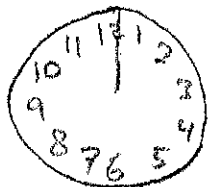
14) $5 \tan(330^\circ) - \sin\left(\frac{\pi}{2}\right)$

$$= 5\left(-\frac{\sqrt{3}}{3}\right) - 1 = -\frac{5\sqrt{3}}{3} - \frac{3}{3} = \frac{-5\sqrt{3} - 3}{3}$$

15) $\cot\left(\frac{7\pi}{6}\right)$

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

16) The minute hand of a clock is 6 inches long. How far does the tip of the minute hand move in 15 minutes? How far does it move in 25 minutes? Round the answer to two decimal places.



$s = r\theta$
 $s = 6\left(\frac{\pi}{2}\right)$
 $= 9.42$

In 15 min it moves 9.42 inches

In 25 min it moves 15.71 inches

$$6\left(\frac{5\pi}{6}\right) = 15.71$$