Take-home trigonometry quiz—Due Monday April 24 Key

SHOW ALL YOUR WORK ON A SEPARATE PIECE OF PAPER.

You should be able to do this with no aids by now, notes or otherwise. The amount of looking things up you need to do is a good indication of how prepared you are for the test.

1. Fill in the information:

y = sin x	dom: $x \in \mathbb{R}$	range: $[-1, 1]$	period: 2π	amplitude: 1	roots on [0, 2π]: $0, \pi$
y = cos x	dom: $x \in \mathbb{R}$	range: $[-1, 1]$	period: 2π	amplitude: 1	roots on [0, 2π]: $\frac{\pi}{2}, \frac{3\pi}{2}$
y = tan x	dom: $x \neq \frac{n\pi}{2}$, $n = \pm 1, 3, 5, \ldots$ or n odd	range: $\mathbb{R}$	period: π	amplitude: NA	roots on [−π, π]: $0, \pi, -\pi$

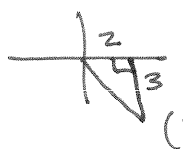
2. Fill in the information for each angle given:

	Complement	Supplement	Positive coterminal	Negative coterminal
64°	26°	116°	424°	−296°
$\frac{\pi^r}{12}$	$\frac{5\pi}{12}$ r	$\frac{11\pi}{12}$ r	$\frac{25\pi}{12}$ r	$-\frac{23\pi}{12}$ r

3. Fill in the information for each angle given:

	Conversion to π r or °	Quadrant	Reference angle (in given angle's units)
−208°	$-\frac{52}{45}\pi$	II	28°
$\frac{11\pi^r}{6}$	330°	IV	$\frac{\pi}{6}$ r

4. The point (2, −3) lies on the terminal side of angle θ. Find the six trigonometric values of θ.



$r = \sqrt{4+9} = \sqrt{13}$

sin θ = $-3/\sqrt{13}$ csc θ = $-\sqrt{13}/3$

cos θ = $2/\sqrt{13}$ sec θ = $\sqrt{13}/2$

tan θ = $-3/2$ cot θ = $-2/3$

Find the coordinates of the point on the *unit circle* that lies on the same terminal side of θ.

$$\left(\frac{2}{\sqrt{13}}, \frac{-3}{\sqrt{13}}\right)$$

5. Evaluate each of these:

sec (π) = $\frac{1}{\cos\pi} = -1$ sin(5π) = 0

tan ($\pi/3$) = $\sqrt{3}$ cot ($\pi/3$) = $\frac{1}{\sqrt{3}}$

cos ($-\pi/2$) = 0 csc (0) = und

6. The sine function and the tangent function are odd functions. The cosine function is an even function.

So, sin(-4π) = $-\sin(4\pi)$ cos($-\pi/3$) = $\cos\left(\frac{\pi}{3}\right)$ $-$tan ($5\pi/6$) = $\tan\left(-\frac{5\pi}{6}\right)$

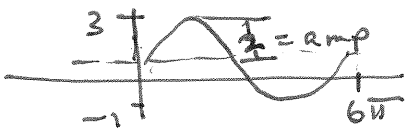
7. What is the equation of a sine function that has an amplitude of ~~4~~ 2, a minimum value of -1 and a maximum value of 3 (that is, a range of [-1, 3], and a period of 6π?

Per $= 6\pi$

$\frac{2\pi}{B} = 6\pi$

$B = \frac{1}{3}$

$y = \cancel{4}\, 2\sin\left(\frac{1}{3}x\right) + 1$



8. Sketch two cycles of the graph of y = 5cos (2θ + π). There is no vertical shift. It will help to first find:

Amp 5 Period $\frac{2\pi}{2} = \pi$ Horizontal shift $\frac{\pi}{2}$ left Endpoints of one cycle $-\frac{\pi}{2}$, $\frac{\pi}{2}$

$y = 5\cos 2\left(\theta + \frac{\pi}{2}\right)$