

Trig Review
First Day Back

Name _____
Period _____ Date _____

1. If $(3, -4)$ lies on the terminal side of $\angle\theta$, find $\sin \theta$ $-4/5$ and $\sec \theta$ $5/3$.

Furthermore, find $m\angle\theta$. -53.13°

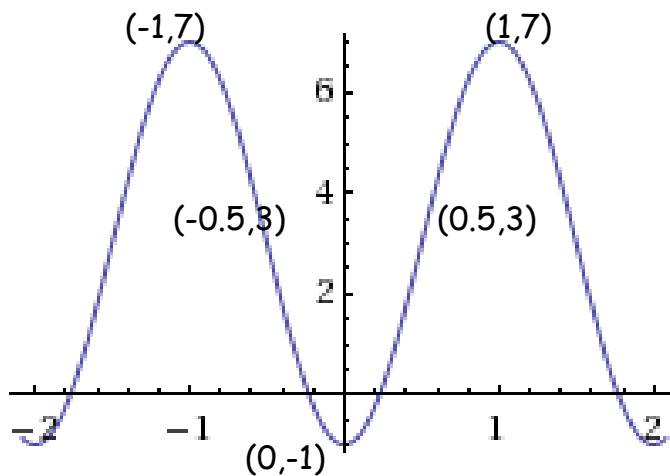
2. Quickly fill these in! $\sin \pi =$ 0 , $\cos 60^\circ =$ $1/2$, $\tan 3\pi/4 =$ -1

$\sin 240^\circ =$ $-\sqrt{3}/2$, $\cos 5\pi/6 =$ $-\sqrt{3}/2$, $\tan 300^\circ =$ $-\sqrt{3}$

3. In $\triangle ABC$, $m\angle A = 85^\circ$, $m\angle C = 90^\circ$ and $b = 10$. Find a . 114.301

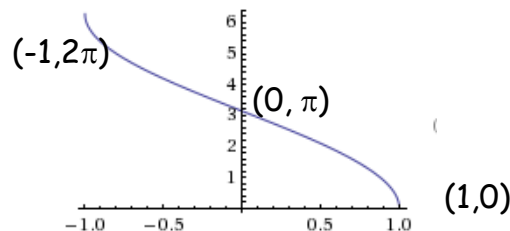
4. In $\triangle PQR$, $m\angle P = 90^\circ$, $q = 6$, and $r = 9$. Find p $\sqrt{117}$ and $m\angle R$. 56.310°

5. If $f(x) = 3 + 4\sin \pi(x - 0.5)$, the period is 2 , the amplitude is 4 , the vertical shift is 3 up and the phase shift is 0.5 right. Sketch this function below, labeling at least 5 points.



6. If $g(x) = 2\cos^{-1}x$, then the domain is $[-1, 1]$ and the range is $[0, 2\pi]$.

Sketch this this graph below, labeling 3 important points.



7. Solve for θ if $0 \leq \theta \leq 2\pi$ $2\cos^2\theta - \sin \theta = 1$ $\theta = \{3\pi/2, \pi/6, 5\pi/6\}$

8. Solve for x if $x \in \text{reals}$: $2 \cdot \cos 3x = 1$

$$x = \pm \pi/9 + 2\pi k/3 : k \in \mathbb{I}$$

9. Classify each of the following statements as "true" or "false".

FALSE A) $\sin x + \cos x = 1$

FALSE B) $\cos 2x = \cos x + \cos x$

TRUE C) $\tan^2 \theta + 1 = \sec^2 \theta$

TRUE D) $\tan A = \sec A / \csc A$

FALSE E) $\sec(-X) = -\sec X$

FALSE F) $\sin(x - \pi) = \sin x$

FALSE G) $\cos(a + b) = \cos a \cdot \cos b + \sin a \cdot \sin b$

TRUE H) $\sin(a + b) + \sin(a - b) = 2 \cdot \sin a \cdot \cos b$

10. If $\pi \leq \theta \leq 2\pi$ and $\sec \theta = -3.153$, find θ . $\theta = \{1.8934, 4.3898\}$

11. If $\pi \leq x \leq 3\pi/2$ and $\csc x = -1.536$, find x . $x = 3.8505$

12. A tractor with tires of diameter 36" is travelling 35 mph. What is the rotational velocity of the tires in RPM?

$$\underline{326.798 \text{ RPM}}$$

13. Find the exact value of: $\sin(\cos^{-1}(-2/3))$. $\frac{\sqrt{5}}{3}$

14. Find the exact value of: $\tan(2 \cdot \cos^{-1}(-2/3))$. $4\sqrt{5}$

15. Find the exact value of: $\cos(\cos^{-1}(-2/3) + \sin^{-1}(-1/3))$. $\frac{-4\sqrt{2} + \sqrt{5}}{9}$

16. It is a sinusoid with equation $f(x) = 5\cos(x - .9273)$ or $f(\theta) = 5\cos(\theta - 53.13^\circ)$

17. Verify: $\frac{\cot^2 \theta}{1 + \csc \theta} = \frac{1 - \sin \theta}{\sin \theta}$ (Only work with one side!)

$$\begin{aligned} \frac{\cot^2 \theta}{1 + \csc \theta} &= \frac{1 - \sin \theta}{\sin \theta} = \frac{\frac{\cos^2 \theta}{\sin^2 \theta}}{1 + \frac{1}{\sin \theta}} = \left(\frac{\cos^2 \theta}{\sin^2 \theta} \right) \cdot \left(\frac{\sin^2 \theta}{1 + \frac{1}{\sin \theta}} \right) = \frac{\cos^2 \theta}{\sin^2 \theta + \sin \theta} = \frac{1 - \sin^2 \theta}{\sin^2 \theta + \sin \theta} = \\ &= \frac{(1 - \sin \theta)(1 + \sin \theta)}{\sin \theta(1 + \sin \theta)} = \frac{1 - \sin \theta}{\sin \theta} \end{aligned}$$