Name: _____ Class: _____ Date: _____ ID: A

Review #2 Pre-Calculus 12 Chapters 4 - 6

Completion
Complete each statement.

1. The cosine of an angle is _____ in quadrant III. (negative or positive)

2. The sine of an angle is _____ in quadrant I. (negative or positive)

3. The reciprocal of tangent is _____.

4. The smallest non-negative value for sin x occurs when the angle in standard position is _____. (Answer in degrees)

5. For the function $y = a\cos b(x-c)+d$, d affects the _____ of the graph.

6. The period of the basic sine function is _____.

7. The maximum value of the function $y = 3\cos\left(\frac{\pi}{6}x\right)-9$ is _____.

8. The period of the function $y = -8\sin\left(\frac{\pi}{3}(x-9)\right)-3$ is _____.

9. The phase shift of the function $y = -8\sin\left(\frac{\pi}{12}(x-7)\right)+2$ is _____ unit(s) to the _____.

10. $\tan x = \frac{\sin x}{\cos x}$ and $\cot x = \frac{\cos x}{\sin x}$ are known as the _____ identities.

11. The general solution, in degrees, for the equation $\cos x - \frac{1}{2} = 0$ is _____.

12. The reciprocal identities are defined as $\csc x =$ _____,
$\sec x =$ _____, and
$\cot x =$ _____

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Matching

Match each trigonometric expression with an equal expression to form a trigonometric identity.

A. $\sin\left(\frac{\pi}{2}-\theta\right)$

B. $\cos\left(\frac{5\pi}{2}-\theta\right)$

C. $\cos\left(\theta+\frac{5\pi}{2}\right)$

D. $\frac{\sin\left(\theta+\frac{\pi}{2}\right)}{\cos\left(\theta+\frac{\pi}{2}\right)}$

E. $\frac{\sin\left(\frac{5\pi}{2}-\theta\right)}{\cos\left(\frac{5\pi}{2}-\theta\right)}$

F. $\sin\left(\theta+\frac{3\pi}{2}\right)$

____ 1. $-\sin\theta$

____ 2. $\cot\theta$

____ 3. $\cos\theta$

____ 4. $-\cot\theta$

____ 5. $\sin\theta$

~~*Match the corresponding trigonometric expressions to form trigonometric identities.*~~

Prove the following identities

A. $\frac{\sin(\alpha+\beta)}{\cos(\alpha+\beta)}$

B. $\frac{1-\tan\alpha\tan\beta}{1+\tan\alpha\tan\beta}$

C. $\frac{\csc\alpha\cos\alpha}{\sec\alpha\sin\alpha}=\cot^2\alpha$

D. $\tan\alpha$

E. $\tan\alpha-\sec\alpha$

____ 6. $\frac{\sin\alpha-1}{\cos\alpha}$ $= \tan\alpha - \sec\alpha$

____ 7. $(\csc\alpha-1)(1+\csc\alpha)$ $= \cot^2\alpha$

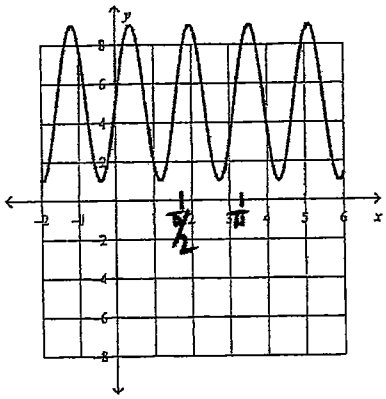
____ 8. $\frac{\sin\alpha+\cos\alpha\tan\beta}{\cos\alpha-\sin\alpha\tan\beta}$ $= \frac{\sin(\alpha+\beta)}{\cos(\alpha+\beta)}$

____ 9. $\frac{\sin4\alpha-\sin2\alpha}{\cos2\alpha+\cos4\alpha}$ $= \tan\alpha$

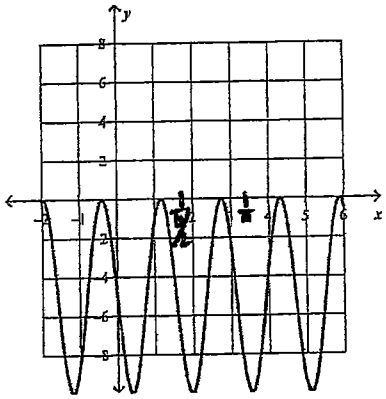
___ 10. $\dfrac{\cos(\alpha+\beta)}{\cos(\alpha-\beta)} = \dfrac{1-\tan\alpha\tan\beta}{1+\tan\alpha\tan\beta}$

Match each equation with its graph.

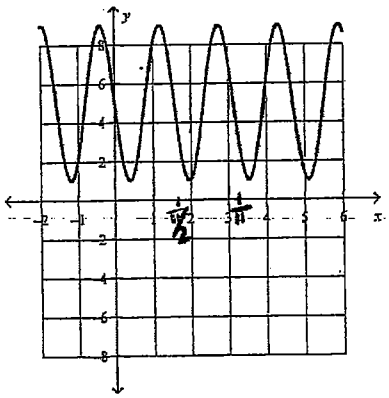
A.



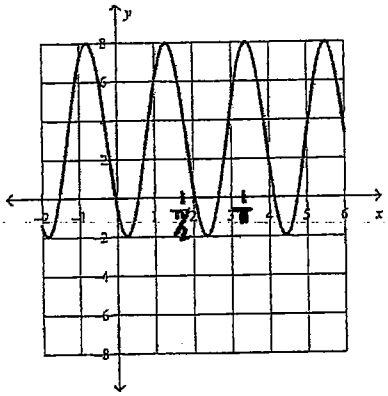
C.



B.



D.



___ 11. $y=-4\sin\left[4\left(x+\dfrac{\pi}{4}\right)\right]+5$

___ 12. $y=-5\sin\left[4\left(x-\dfrac{\pi}{2}\right)\right]-5$

___ 13. $y=5\cos\left[-3\left(x+\dfrac{\pi}{4}\right)\right]+3$