

Section 04-01 - Sample Quiz - Basic Trig Identities**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

_____ 1. Which is equivalent to $\sec(\theta)$?

a. $\frac{1}{\cos(\theta)}$

c. $\frac{1}{\sin(\theta)}$

b. $\frac{1}{\csc(\theta)}$

d. $\frac{1}{\tan(\theta)}$

_____ 2. Using basic trigonometric identities simplify the following expression:

$$\sin(\theta) \cdot \sec(\theta)$$

a. $\cot(\theta)$

c. $\csc(\theta)$

b. $\cos(\theta)$

d. $\tan(\theta)$

_____ 3. Using basic trigonometric identities simplify the following expression:

$$\frac{\tan(x)}{\sin(x)}$$

a. $\csc(x)$

c. $\cos(x)$

b. $\sec(x)$

d. $\cot(x)$

_____ 4. Using basic trigonometric identities simplify the following expression:

$$\frac{\cos(\theta)}{\cot(\theta)} + \tan(\theta) \cdot \cos(\theta)$$

a. 0

c. $\cos(\theta) + \sin(\theta)$

b. $2\sin(\theta)$

d. $\tan(\theta) + \sin(\theta)$

_____ 5. Using basic trigonometric identities simplify the following expression:

$$\frac{1 - \sin^2(\theta)}{\cos(\theta)}$$

a. $\sin(\theta)$

c. $\csc(\theta)$

b. $\cos(\theta)$

d. $\sec(\theta)$

- ____ 6. Using basic trigonometric identities simplify the following expression:

$$\frac{1}{(1 - \cos \alpha)(1 + \cos \alpha)}$$

- | | |
|--------------------|--------------------|
| a. $\sin^2 \alpha$ | c. $\tan^2 \alpha$ |
| b. $\cos^2 \alpha$ | d. $\csc^2 \alpha$ |

- ____ 7. If you were asked to verify the following identity, what is the most likely first step to take?

$$\frac{\sin^2(\theta) + \cos^2(\theta)}{\cos(\theta)} = \sec(\theta)$$

- a. Replace $\cos(\theta)$ on the left side of the equation with $\frac{1}{\csc(\theta)}$.
- b. Replace $\sin^2(\theta) + \cos^2(\theta)$ on the left side of the equation with 1.
- c. Replace $\sin^2(\theta)$ on the left side of the equation with $\frac{1}{\csc^2(\theta)}$.
- d. You can't verify the identity because it isn't true.

8. A student was asked to verify the following identity.

Verify the following identity:

$$\frac{1 - \cos^2 x}{\sin x} = \sin x$$

$$\frac{\sin x}{\sin x} = \sin x \quad : \text{ Replace } 1 - \cos^2 x \text{ with } \sin x$$

$$\frac{\cancel{\sin x}}{\cancel{\sin x}} = \sin x \quad : \text{ "Divide Out" the } \sin x$$


$$1 = \sin x$$

Where did the student make a mistake or is the student correct?

- $1 = \sin x$ is correct
- $1 - \cos^2 x$ should have been replaced with $\sin^2 x$
- The student shouldn't have "divided out" the $\sin x$ completely
- You can't verify the identity because the identity is false.