

Trigonometric Function Properties and Identities

Mathematics · Answer Key · 10 Questions

1. What is the period of the function $f(x) = \sin(4x)$?

A) $\pi/2$

B) π

C) 2π

D) 4π

2. Find the amplitude of the function $g(x) = 3\cos(x) + 5$.

A) 3

B) 5

C) 8

D) 2

3. Simplify the expression $\sin(\theta) + \cos(\theta) + \tan(\theta)$ given that $\sin(\theta) + \cos(\theta) = 1$.

A) $\sec(\theta)$

B) $\csc(\theta)$

C) 1

D) $\tan(\theta)$

4. If $\sec(\theta) = 2$ and $270^\circ < \theta < 360^\circ$, find θ .

A) 300°

B) 330°

C) 270°

D) 360°

5. Solve for x in the interval $[0, 2\pi]$: $2\sin(x) > 1$.

A) $(\pi/6, 5\pi/6)$

B) $[0, \pi/6) \cup (5\pi/6, 2\pi]$

C) $(0, \pi/6) \cup (5\pi/6, 2\pi)$

D) $[\pi/6, 5\pi/6]$

6. What is the domain of the function $s(x) = \tan(x)$?

A) $x \neq n\pi, n \in \mathbb{Z}$

B) $x \neq \pi/2 + n\pi, n \in \mathbb{Z}$

C) $x \neq 2n\pi, n \in \mathbb{Z}$

D) $x \in \mathbb{R}$

7. Find the exact value of $\sin(210^\circ)$.

- A) $-1/2$
- B) $1/2$
- C) $-\sqrt{3}/2$
- D) $\sqrt{3}/2$

8. What is the range of the function $h(x) = 2\sin(x) - 3$?

- A) $[-5, -1]$
- B) $[-1, 1]$
- C) $[-3, 2]$
- D) $[-2, 2]$

9. Which of the following is equivalent to $\cos(-x)$?

- A) $\cos(x)$
- B) $\sin(x)$
- C) $-\cos(x)$
- D) $-\sin(x)$

10. If $\cos(\theta) = 1/2$ and $0^\circ < \theta < 90^\circ$, what is the value of $\sec(\theta)$?

- A) 2
- B) $1/2$
- C) $\sqrt{3}/2$
- D) $2/\sqrt{3}$