

Classroom Voting Questions: Precalculus

Inverse Trigonometric Functions

1. What is $\arcsin\left(\frac{1}{2}\right)$?

(a) 0

(b) $\frac{\pi}{6}$

(c) $\frac{\pi}{4}$

(d) $\frac{\pi}{3}$

2. What is $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$?

(a) $\frac{\pi}{3}$

(b) $\frac{5\pi}{3}$

(c) $-\frac{\pi}{3}$

(d) $\frac{4\pi}{3}$

3. What is $\arcsin(-1)$?

(a) $\frac{3\pi}{2}$

(b) $\frac{\pi}{2}$

(c) $-\frac{\pi}{2}$

(d) $-\frac{3\pi}{2}$

4. What is $\arccos\left(\frac{1}{2}\right)$?

- (a) $\frac{\pi}{6}$
- (b) $\frac{\pi}{4}$
- (c) $\frac{\pi}{3}$
- (d) $\frac{\pi}{2}$

5. What is $\cos^{-1}(-1)$?

- (a) 0
- (b) π
- (c) $-\pi$
- (d) 2π

6. What is $\arccos\left(-\frac{\sqrt{2}}{2}\right)$?

- (a) $\frac{\pi}{4}$
- (b) $-\frac{\pi}{4}$
- (c) $\frac{3\pi}{4}$
- (d) $\frac{5\pi}{4}$

7. What is $\tan^{-1}(1)$?

- (a) $\frac{\pi}{2}$
- (b) $\frac{\pi}{3}$
- (c) $\frac{\pi}{4}$
- (d) $\frac{\pi}{6}$

8. What is $\arctan(-\sqrt{3})$?

- (a) $\frac{2\pi}{3}$

- (b) $\frac{5\pi}{3}$
- (c) $-\frac{\pi}{3}$
- (d) $-\frac{2\pi}{3}$

9. What is $\arctan(0)$?

- (a) 0
- (b) $\frac{\pi}{2}$
- (c) π
- (d) $\frac{3\pi}{2}$

10. True or False: $\sin^{-1}\left(\sin\left(\frac{5}{4}\right)\right) = \frac{5}{4}$

- (a) True, and I am very confident.
- (b) True, but I am not very confident.
- (c) False, but I am not very confident.
- (d) False, and I am very confident.

11. True or False: $\sin\left(\sin^{-1}\left(\frac{5}{4}\right)\right) = \frac{5}{4}$

- (a) True, and I am very confident.
- (b) True, but I am not very confident.
- (c) False, but I am not very confident.
- (d) False, and I am very confident.

12. True or False: $\sin^{-1}\left(\sin\frac{\pi}{3}\right) = \frac{\pi}{3}$.

- (a) True, and I am very confident.
- (b) True, but I am not very confident.
- (c) False, but I am not very confident.
- (d) False, and I am very confident.

13. True or False: $\sin^{-1}\left(\sin\frac{3\pi}{4}\right) = \frac{3\pi}{4}$.
- True, and I am very confident.
 - True, but I am not very confident.
 - False, but I am not very confident.
 - False, and I am very confident.
14. Calculate the exact value of $\sin\left(\arctan\left(\frac{4}{3}\right)\right)$. Work this out by hand, without using a calculator.
- $\frac{4}{3}$
 - $\frac{3}{4}$
 - $\frac{4}{5}$
 - $\frac{3}{5}$
15. Calculate the exact value of $\sin\left(2\arctan\left(\frac{4}{3}\right)\right)$. Work this out by hand, without using a calculator.
- $\frac{24}{25}$
 - $\frac{8}{5}$
 - $\frac{8}{3}$
 - $\frac{12}{25}$
16. A triangle has sides of length a , b , and c and angles measuring α , β , and γ opposite those sides, respectively. If $a = 3$, $b = 4$, and $\gamma = 90^\circ$, find α .
- $\alpha = \tan^{-1}\frac{3}{4}$
 - $\alpha = \tan^{-1}\frac{4}{3}$
 - $\alpha = \cos^{-1}\frac{3}{4}$
 - $\alpha = \cos^{-1}\frac{4}{3}$