

1. If $\tan A = \sqrt{5}$, find $\tan 2A$.
- $-2\sqrt{5}$
 - $\frac{\sqrt{5}}{4}$
 - $\frac{\sqrt{5}}{2}$
 - $-\frac{\sqrt{5}}{2}$
 - $2\sqrt{5}$
2. Rewrite the expression $\cos 5x - \cos 3x$ as a product.
- $-2 \sin 3x \sin x$
 - $2 \sin 4x \sin x$
 - $-2 \sin 6x \sin x$
 - $-2 \sin 3x \cos x$
 - $-2 \sin 4x \sin x$
3. Evaluate $\sin \left(2 \sin^{-1} \frac{1}{\sqrt{10}} \right)$.
- $-\frac{2}{\sqrt{10}}$
 - $\frac{2}{5}$
 - $\frac{3}{5}$
 - $-\frac{3}{5}$
 - $-\frac{2}{5}$
4. Simplify $\cos^2 x (\tan^2 x + 1)$.
- $\cot^2 x$
 - 1
 - $\tan x$
 - 2
 - $\cos^2 x$
5. Identify the amplitude and phase shift for the equation $y = 3 \cos(2x + \pi)$.
- Amplitude = 1; Phase shift = $-\frac{\pi}{2}$
 - Amplitude = 1; Phase shift = $\frac{\pi}{2}$
 - Amplitude = 3; Phase shift = $-\frac{\pi}{2}$
 - Amplitude = 1; Phase shift = π
 - Amplitude = 3; Phase shift = $\frac{\pi}{2}$
6. Evaluate $\cot \left(\tan^{-1} \frac{1}{4} \right)$.
- 2
 - $\frac{1}{4}$
 - 4
 - 4
 - 2
7. Solve the equation $1 + \sin x - 2 \cos^2 x = 0$ for x if $0 \leq x < 2\pi$.
- $0, \frac{2\pi}{3}, \frac{4\pi}{3}$
 - $\frac{\pi}{3}, \pi, \frac{5\pi}{3}$
 - $\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}$
 - $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{3\pi}{2}$
 - $\frac{\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}$
8. If $\sin A = -\frac{4}{5}$ with A in quadrant IV, and $\sin B = \frac{3}{5}$ with B in quadrant II, find $\sin(A - B)$.
- $-\frac{7}{23}$
 - $\frac{7}{25}$
 - $-\frac{7}{25}$
 - $\frac{9}{25}$
 - $\frac{9}{23}$

9. Solve the equation $8 \sin t + 1 = 6 \sin t$ for t if $0 \leq t < 2\pi$.

- a) $\frac{\pi}{4}, \frac{5\pi}{4}$
- b) $\frac{7\pi}{6}, \frac{11\pi}{6}$
- c) $\frac{5\pi}{6}, \frac{7\pi}{6}$
- d) $\frac{4\pi}{3}, \frac{5\pi}{3}$
- e) $\frac{3\pi}{4}, \frac{5\pi}{4}$

10. Solve $\cot x = 0$.

- a) $\frac{\pi}{3} + 2k\pi$ where k is an integer.
- b) $2k\pi$ where k is an integer.
- c) $-\frac{\pi}{3} + 2k\pi$ where k is an integer.
- d) $\frac{\pi}{4} + 2k\pi$ where k is an integer.
- e) $\frac{\pi}{2} + k\pi$ where k is an integer.

11. Solve $2 \cos^2 x + \cos x - 1 = 0$ for x if $0 \leq x < 2\pi$.

- a) $0, \frac{\pi}{3}, \frac{5\pi}{3}$
- b) $\pi, \frac{\pi}{6}, \frac{5\pi}{6}$
- c) $0, \frac{\pi}{6}, \frac{5\pi}{6}$
- d) $0, \frac{2\pi}{3}, \frac{4\pi}{3}$
- e) $\pi, \frac{\pi}{3}, \frac{5\pi}{3}$

12. Write the expression $\sin 7x \cos x - \cos 7x \sin x$ as a single trigonometric function.

- a) $\sin 6x$
- b) $\sin 3x$
- c) $\sin 4x$
- d) $\sin 10x$
- e) $\sin 5x$

13. Use half-angle formulas to find the exact value for $\tan 15^\circ$.

- a) $-\frac{1}{2}$
- b) $\frac{\sqrt{1+\sqrt{2}}}{2}$
- c) $\frac{1}{2}$
- d) $2 - \sqrt{3}$
- e) $2 + \sqrt{3}$

14. Find the period of the function $y = \sin \pi x$.

- a) 4π
- b) 1
- c) 2π
- d) π
- e) 2

15. Solve the equation $2 \cos \theta - \sin 2\theta = 0$ for θ if $0^\circ \leq \theta < 360^\circ$.

- a) $30^\circ, 330^\circ$
- b) $90^\circ, 270^\circ$
- c) $60^\circ, 300^\circ$
- d) $0^\circ, 90^\circ$
- e) 90°

16. Evaluate $\sin^{-1}\left(-\frac{1}{2}\right)$.

- a) $-\frac{\pi}{6}$
- b) $\frac{\pi}{3}$
- c) 0
- d) $\frac{\pi}{6}$
- e) $\frac{\pi}{2}$

17. If $\csc A = \sqrt{10}$ with A in quadrant II find $\sec 2A$.

a) $-\frac{1}{2}$

b) $\frac{5}{12}$

c) $\frac{5}{4}$

d) $-\frac{5}{8}$

e) $-\frac{5}{4}$

18. Find the identical expression for $\sin\left(\frac{\pi}{2} - x\right)$.

a) $\tan x$

b) $\sin x$

c) $-\sin x$

d) $-\cos x$

e) $\cos x$

19. Simplify $\frac{\cos x}{1 + \sin x} - \frac{1 - \sin x}{\cos x}$.

a) $\sec x$

b) 0

c) $2 \sec x$

d) 2

e) $2 \csc x$

20. The graph below is one complete cycle of the graph of an equation containing a trigonometric function. Find an equation to match the graph.

a) $y = 3 - \cos \pi x$

b) $y = +13 \cos \pi x$

c) $y = 5 - \cos \pi x$

d) $y = 3 - 2 \cos \pi x$

e) $y = 5 - 2 \cos \pi x$

ITEM NO.	FORM:	A
1		D
2		E
3		C
4		B
5		C
6		D
7		D
8		B
9		B
10		E
11		E
12		A
13		D
14		E
15		B
16		A
17		C
18		E
19		B
20		A