

Comprehensive Review #5

Topics:

Lesson 52 - Arguments in Trig Equations

Lesson 60 - Factorable Trig Equations

Lesson 84 - Factorable Expressions

1. Solve the equation $\cos 2x - \frac{1}{2} = 0$ given that $0 \leq x < 2\pi$.

2. Solve $2 \sec 2\theta - \frac{4}{3}\sqrt{3} = 0$ given that $0^\circ \leq \theta < 360^\circ$.

3. Solve $3\sec^2 \frac{\theta}{2} - 4 \sec \frac{\theta}{2} - 4 = 0$ given that $0^\circ \leq \theta < 360^\circ$.

4. Solve $6\cot^2 2\theta = 2$ given that $0^\circ \leq \theta < 360^\circ$.

5. Solve $4 \sec^2 \frac{\theta}{2} - 7 \sec \frac{\theta}{2} - 2 = 0$ given that $0^\circ \leq \theta < 360^\circ$.

[A] 240°

[B] 120°

[C] $60^\circ, 300^\circ$

[D] 180°

6. Solve $3 \csc^2 \frac{\theta}{2} - 2 \csc \frac{\theta}{2} - 1 = 0$ given that $0^\circ \leq \theta < 360^\circ$.

[A] 180°

[B] $60^\circ, 300^\circ$

[C] 120°

[D] 240°

7. Solve $4 \sin^2 \theta - 3 = 0$ given that $0^\circ \leq \theta < 360^\circ$.

[A] $0^\circ, 180^\circ, 360^\circ$

[B] $90^\circ, 270^\circ$

[C] $60^\circ, 120^\circ, 240^\circ, 300^\circ$

[D] $45^\circ, 135^\circ, 225^\circ, 315^\circ$

8. Solve $\cos^2 \theta - 1 = 0$ given that $0^\circ \leq \theta < 360^\circ$.

[A] $90^\circ, 270^\circ$

[B] $0^\circ, 180^\circ$

[C] $45^\circ, 135^\circ, 225^\circ, 315^\circ$

[D] $30^\circ, 150^\circ, 210^\circ, 330^\circ$

9. Show: $\sin^4 x - 2\sin^2 x + 1 = \cos^4 x$

10. Show: $\cos x - \cos x \sin^2 x = \cos^3 x$

11. Show: $\frac{\sec^2 x - 1}{\cot x} = \tan^3 x$

12. Show: $\frac{\sin^3 x - \cos^3 x}{\sin x - \cos x} - \sin x \cdot \cos x = 1$

13. Determine which of the possible identities is true.

[A] $\frac{\csc^3 x - \cot^3 x}{\csc^2 x + \cot^2 x} - \cot^2 x = \cot^2 x$	[B] $\frac{\csc^3 x - \cot^3 x}{\csc^2 x + \cot^2 x} - \cot^2 x = \csc^2 x$
[C] $\frac{\csc^4 x - \cot^4 x}{\csc^2 x + \cot^2 x} + \cot^2 x = \csc^2 x$	[D] $\frac{\csc^4 x - \cot^4 x}{\csc^2 x + \cot^2 x} + \cot^2 x = \cot^2 x$

14. Determine which of the possible identities is true.

[A] $\cos x + \cos x \cdot \sin^2 x = \cos^3 x$	[B] $\cos x - \cos x \cdot \sin^2 x = \sin^4 x$
[C] $\cos x - \cos x \cdot \sin^2 x = \cos^3 x$	[D] $\cos x + \cos x \cdot \sin^2 x = \sin^4 x$

15. Determine which of the possible identities is true.

[A] $\frac{\csc^2 x - 1}{\cot x} = \tan^3 x$	[B] $\frac{\csc^2 x - 1}{\cot x} = \tan^2 x$
[C] $\frac{\sec^2 x - 1}{\cot x} = \tan^3 x$	[D] $\frac{\sec^2 x - 1}{\cot x} = \tan^2 x$