Comprehensive Review #3

Topics:
Lesson 32 - Inverse Trig Functions
Lesson 41 - Reciprocal Trig Functions
Lesson 48 - Powers of Trig Functions
Lesson 66 - Phase Shifts and Period Changes

1. Find the value of $\text{Arccos}\left(-\dfrac{\sqrt{3}}{2}\right)$. Express your answer in radians.

   [A] $\dfrac{5\pi}{6}$ [B] $\dfrac{3\pi}{4}$ [C] $-\dfrac{\pi}{6}$ [D] $\dfrac{\pi}{6}$

2. Find the value of $\text{Arccos}\left(-\dfrac{\sqrt{2}}{2}\right)$. Express your answer in radians.

   [A] $\dfrac{\pi}{3}$ [B] $-\dfrac{\pi}{6}$ [C] $\dfrac{3\pi}{4}$ [D] $\dfrac{\pi}{6}$

3. Find the value of $\text{Arcsin}\left(\dfrac{1}{2}\right)$. Express your answer in radians.

   [A] $-\dfrac{\pi}{3}$ [B] $\dfrac{\pi}{3}$ [C] $\dfrac{\pi}{6}$ [D] $-\dfrac{\pi}{6}$

4. Evaluate: $\tan\left(\text{Arccos }\dfrac{1}{2}\right)$. Do not use a calculator.

5. Evaluate: $\tan\left(\text{Arcsin }\dfrac{1}{2}\right)$. Do not use a calculator.

Evaluate:

6. $\sin 630° + \sec 120°$. Do not use a calculator.

7. $\sin^2(45°) - \csc^2(-30°) + \cos^2(30°)$

8. Solve $4\cot 2\theta - 4\sqrt{3} = 0$ given that $0° \le \theta < 360°$.
   [A] $15°, 60°, 105°, 195°, 285°$ [B] $15°, 105°, 195°$
   [C] $15°, 105°, 195°, 285°$ [D] $15°, 105°$

9. Solve $3\sec 3\theta - 2\sqrt{3} = 0$ given that $0° \le \theta < 360°$.
   [A] $10°, 110°, 130°, 230°, 250°$ [B] $10°, 110°, 120°, 130°, 230°, 250°, 350°$
   [C] $10°, 130°$ [D] $10°, 110°, 130°, 230°, 250°, 350°$

10. Solve $8\cos^2 3\theta = 6$ given that $0° \le \theta < 360°$.
    [A] $10°, 50°, 70°, 110°, 130°, 170°, 190°, 230°, 250°, 290°, 310°, 350°$
    [B] $10°, 50°, 70°, 110°, 130°, 150°, 170°, 190°, 230°, 250°, 290°, 310°, 350°$
    [C] $10°, 50°, 70°, 110°, 130°, 150°, 170°, 190°, 230°, 250°, 290°, 310°$
    [D] $10°, 170°$
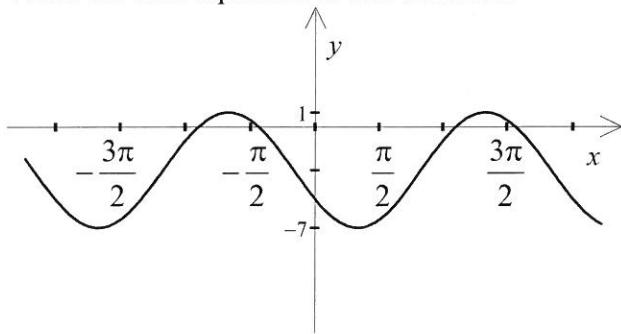
11. Solve $15\csc^2 2\theta = 20$ given that $0° \leq \theta < 360°$.

[A] $30°, 150°$ [B] $30°, 60°, 120°, 150°, 210°, 240°, 300°, 330°$

[C] $30°, 60°, 120°, 135°, 150°, 210°, 240°, 300°, 330°$

[D] $30°, 60°, 120°, 135°, 150°, 210°, 240°, 300°$
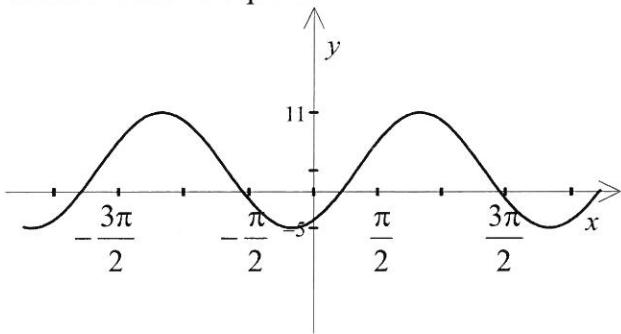
12. Solve $9\sec^2 2\theta = 12$ given that $0° \leq \theta < 360°$.

[A] $15°, 75°, 105°, 165°, 195°, 255°, 285°, 345°$

[B] $15°, 75°, 105°, 135°, 165°, 195°, 255°, 285°$

[C] $15°, 165°$ [D] $15°, 75°, 105°, 135°, 165°, 195°, 255°, 285°, 345°$
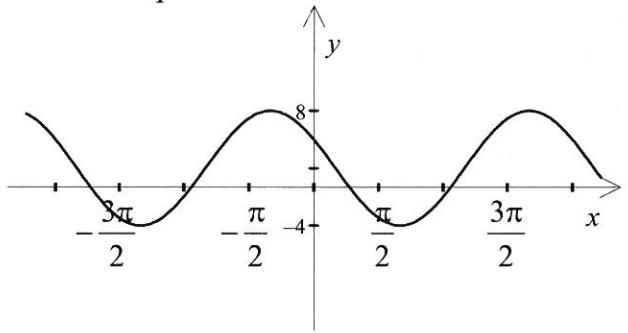
13. Write the sine equation of this sinusoid.

14. Write the cosine equation of this sinusoid.

15. Write the equation of this sinusoid.
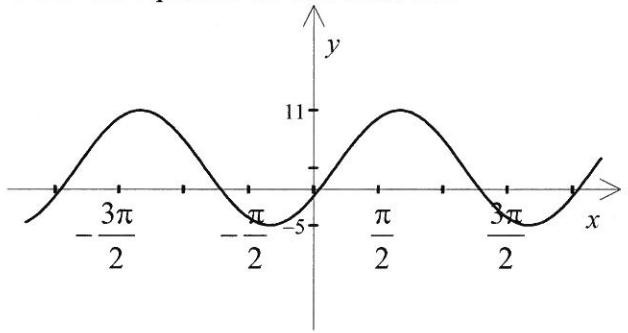
[A] $y = 2 - 6 \cos\left(x + \dfrac{\pi}{3}\right)$

[B] $y = 2 + 6 \cos\left(x + \dfrac{\pi}{3}\right)$

[C] $y = 2 - 6 \cos\left(x - \dfrac{\pi}{3}\right)$

[D] $y = 2 + 6 \cos\left(x - \dfrac{\pi}{3}\right)$

16. Write the equation of this sinusoid.

[A] $y = 3 - 8 \sin\left(x - \dfrac{\pi}{6}\right)$

[B] $y = 3 - 8 \sin\left(x + \dfrac{\pi}{6}\right)$

[C] $y = 3 + 8 \sin\left(x + \dfrac{\pi}{6}\right)$

[D] $y = 3 + 8 \sin\left(x - \dfrac{\pi}{6}\right)$