

## Equations &amp; Graphing

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**Solve each equation for  $0 \leq \theta < 2\pi$ .**

1)  $\cos \theta = -\frac{1}{2}$

2)  $0 = \sin \theta$

3)  $\frac{\sqrt{2}}{2} = \cos \frac{\theta}{2}$

4)  $-\frac{\sqrt{3}}{2} = \sin \left( \theta + \frac{2\pi}{3} \right)$

**Solve each equation for  $0 \leq \theta \leq \pi$ .**

5)  $4 + \cos 3\theta = 5$

6)  $-6\sin 4\theta = 3\sqrt{2}$

7)  $2\sin \left( 4\theta + \frac{\pi}{4} \right) = 1$

8)  $3 = -3\cos \left( -\theta + \frac{3\pi}{2} \right)$

**Solve each equation for  $-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$ .**

9)  $-5 + \cos \left( \theta + \frac{5\pi}{6} \right) = -5$

10)  $2\sqrt{3} = 3\sin 3\theta$

11)  $2 - 2\sin \left( -3\theta + \frac{4\pi}{3} \right) = 1$

12)  $-4 = -1 + 3\cos (3\theta + \pi)$

**Using radians, find the amplitude and period of each function. Then graph.**

13)  $y = 2 + 4\cos 3\theta$

14)  $y = \frac{1}{2} \cdot \sin \frac{\theta}{3} - 1$

15)  $y = \frac{1}{2} \cdot \cos \left( \frac{\theta}{3} + \frac{\pi}{6} \right) + 1$

16)  $y = 3\sin \left( \frac{\theta}{4} - \frac{3\pi}{4} \right) + 2$

# Answers to Equations & Graphing

1)  $\left\{\frac{2\pi}{3}, \frac{4\pi}{3}\right\}$

2)  $\{0, \pi\}$

3)  $\left\{\frac{\pi}{2}\right\}$

4)  $\left\{\frac{2\pi}{3}, \pi\right\}$

5)  $\left\{0, \frac{2\pi}{3}\right\}$

6)  $\left\{\frac{5\pi}{16}, \frac{7\pi}{16}, \frac{13\pi}{16}, \frac{15\pi}{16}\right\}$

7)  $\left\{\frac{7\pi}{48}, \frac{23\pi}{48}, \frac{31\pi}{48}, \frac{47\pi}{48}\right\}$

8)  $\left\{\frac{\pi}{2}\right\}$

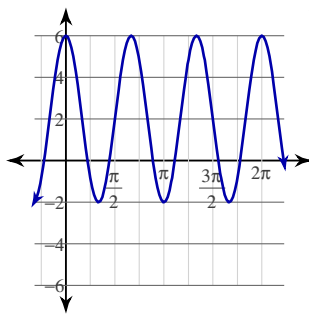
9)  $\left\{-\frac{\pi}{3}\right\}$

10) No solution.

11)  $\left\{-\frac{\pi}{2}, -\frac{5\pi}{18}, \frac{\pi}{6}, \frac{7\pi}{18}\right\}$

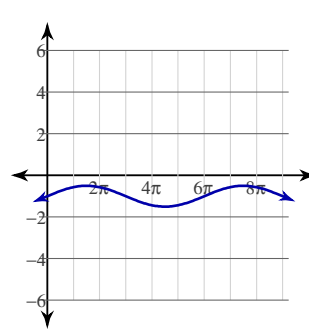
12)  $\{0\}$

13)



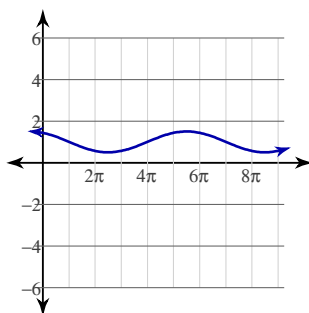
Amplitude: 4  
Period:  $\frac{2\pi}{3}$

14)



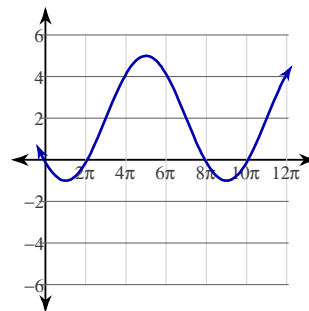
Amplitude:  $\frac{1}{2}$   
Period:  $6\pi$

15)



Amplitude:  $\frac{1}{2}$   
Period:  $6\pi$

16)



Amplitude: 3  
Period:  $8\pi$