

Worksheet 102 - Solving Trigonometric Equations

Find all solutions to each equation in radians.

1) $\frac{\sqrt{3}}{2} = \sin \theta$

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

3) $0 = \cos \theta$

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

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

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

7) $-\frac{7}{2} = -4 + \sin \theta$

8) $6\sin \theta = 3\sqrt{3}$

9) $-6\sin \theta = 3\sqrt{3}$

10) $4 = 4 + \cos \theta$

$$11) \frac{2}{5} \cdot \sin \theta = \frac{1}{5}$$

$$12) \frac{7}{2} = 3 + \cos \theta$$

$$13) -\frac{1}{5} \cdot \csc \theta = \frac{2}{5}$$

$$14) 3 + \csc \theta = 1$$

$$15) 8 = -4\sec \theta$$

$$16) -\frac{2}{5} = -\frac{1}{5} \cdot \csc \theta$$

$$17) 3\csc \theta = -2 + 2\csc \theta$$

$$18) 1 + \sin \theta = 2\sin \theta$$

$$19) 3\sin \theta = -\frac{\sqrt{3}}{2} + 2\sin \theta$$

$$20) -1 - 2\cos \theta = -\cos \theta$$

$$21) -\frac{\sqrt{2}}{2} - 3\sin \theta = -2\sin \theta$$

$$22) 3\cos \theta = \frac{\sqrt{3}}{2} + 2\cos \theta$$

Worksheet 102 - Solving Trigonometric Equations

Find all solutions to each equation in radians.

$$1) \frac{\sqrt{3}}{2} = \sin \theta$$

$$\left\{ \frac{\pi}{3} + 2\pi n, \frac{2\pi}{3} + 2\pi n \right\}$$

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

$$\left\{ \frac{\pi}{6} + 2\pi n, \frac{11\pi}{6} + 2\pi n \right\}$$

$$3) 0 = \cos \theta$$

$$\left\{ \frac{\pi}{2} + \pi n \right\}$$

$$4) \cos \theta = -\frac{1}{2}$$

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

$$5) \frac{1}{2} = \cos \theta$$

$$\left\{ \frac{\pi}{3} + 2\pi n, \frac{5\pi}{3} + 2\pi n \right\}$$

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

$$\left\{ \frac{5\pi}{4} + 2\pi n, \frac{7\pi}{4} + 2\pi n \right\}$$

$$7) -\frac{7}{2} = -4 + \sin \theta$$

$$\left\{ \frac{\pi}{6} + 2\pi n, \frac{5\pi}{6} + 2\pi n \right\}$$

$$8) 6\sin \theta = 3\sqrt{3}$$

$$\left\{ \frac{\pi}{3} + 2\pi n, \frac{2\pi}{3} + 2\pi n \right\}$$

$$9) -6\sin \theta = 3\sqrt{3}$$

$$\left\{ \frac{4\pi}{3} + 2\pi n, \frac{5\pi}{3} + 2\pi n \right\}$$

$$10) 4 = 4 + \cos \theta$$

$$\left\{ \frac{\pi}{2} + \pi n \right\}$$

$$11) \frac{2}{5} \cdot \sin \theta = \frac{1}{5}$$

$$\left\{ \frac{\pi}{6} + 2\pi n, \frac{5\pi}{6} + 2\pi n \right\}$$

$$12) \frac{7}{2} = 3 + \cos \theta$$

$$\left\{ \frac{\pi}{3} + 2\pi n, \frac{5\pi}{3} + 2\pi n \right\}$$

$$13) -\frac{1}{5} \cdot \csc \theta = \frac{2}{5}$$

$$\left\{ \frac{7\pi}{6} + 2\pi n, \frac{11\pi}{6} + 2\pi n \right\}$$

$$14) 3 + \csc \theta = 1$$

$$\left\{ \frac{7\pi}{6} + 2\pi n, \frac{11\pi}{6} + 2\pi n \right\}$$

$$15) 8 = -4\sec \theta$$

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

$$16) -\frac{2}{5} = -\frac{1}{5} \cdot \csc \theta$$

$$\left\{ \frac{\pi}{6} + 2\pi n, \frac{5\pi}{6} + 2\pi n \right\}$$

$$17) 3\csc \theta = -2 + 2\csc \theta$$

$$\left\{ \frac{7\pi}{6} + 2\pi n, \frac{11\pi}{6} + 2\pi n \right\}$$

$$18) 1 + \sin \theta = 2\sin \theta$$

$$\left\{ \frac{\pi}{2} + 2\pi n \right\}$$

$$19) 3\sin \theta = -\frac{\sqrt{3}}{2} + 2\sin \theta$$

$$\left\{ \frac{4\pi}{3} + 2\pi n, \frac{5\pi}{3} + 2\pi n \right\}$$

$$20) -1 - 2\cos \theta = -\cos \theta$$

$$\left\{ \pi + 2\pi n \right\}$$

$$21) -\frac{\sqrt{2}}{2} - 3\sin \theta = -2\sin \theta$$

$$\left\{ \frac{5\pi}{4} + 2\pi n, \frac{7\pi}{4} + 2\pi n \right\}$$

$$22) 3\cos \theta = \frac{\sqrt{3}}{2} + 2\cos \theta$$

$$\left\{ \frac{\pi}{6} + 2\pi n, \frac{11\pi}{6} + 2\pi n \right\}$$