

Solving Trig. Equations

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Date _____ Period _____

Solve each equation for $0 \leq \theta < 360$.

1) $1 = 3 + 4\cos \theta$

2) $-3 - 4\tan \theta = 1$

3) $-4 + 6\cos \theta = -7$

4) $1 = -3 + 8\sin \theta$

5) $1 + 3\sin \theta = 1$

6) $1 - 3\cos \theta = 1$

7) $-5 + \frac{2}{3} \cdot \cos \theta = -\frac{16}{3}$

8) $-4 + \frac{1}{3} \cdot \sin \theta = -4$

9) $\frac{-6 - \sqrt{3}}{3} = -2 + \frac{1}{3} \cdot \tan \theta$

10) $-\frac{4}{3} = -1 + \frac{2}{3} \cdot \sin \theta$

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

$$11) -2 + \frac{1}{5} \cdot \tan \theta = \frac{-10 - \sqrt{3}}{5}$$

$$12) 4 - 4\tan \theta = 4$$

$$13) -2 + 4\cos \theta = -2$$

$$14) \frac{-9 + \sqrt{3}}{3} = -3 + \frac{1}{3} \cdot \tan \theta$$

$$15) 5 - \frac{1}{4} \cdot \tan \theta = 5$$

$$16) 10 = 4 - 3\sin \theta$$

$$17) 4 - \frac{1}{3} \cdot \sin \theta = \frac{13}{3}$$

$$18) 4 - \tan \theta = 4$$

$$19) 3 - \frac{1}{4} \cdot \cos \theta = 3$$

$$20) -5 - 4\tan \theta = -1$$

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Solve each equation for $0 \leq \theta < 360$.

1) $1 = 3 + 4\cos \theta$

2) $-3 - 4\tan \theta = 1$

{120, 240}

{135, 315}

3) $-4 + 6\cos \theta = -7$

4) $1 = -3 + 8\sin \theta$

{120, 240}

{30, 150}

5) $1 + 3\sin \theta = 1$

6) $1 - 3\cos \theta = 1$

{0, 180}

{90, 270}

7) $-5 + \frac{2}{3} \cdot \cos \theta = -\frac{16}{3}$

8) $-4 + \frac{1}{3} \cdot \sin \theta = -4$

{120, 240}

{0, 180}

9) $\frac{-6 - \sqrt{3}}{3} = -2 + \frac{1}{3} \cdot \tan \theta$

10) $-\frac{4}{3} = -1 + \frac{2}{3} \cdot \sin \theta$

{120, 300}

{210, 330}

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

$$11) -2 + \frac{1}{5} \cdot \tan \theta = \frac{-10 - \sqrt{3}}{5}$$

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

$$12) 4 - 4\tan \theta = 4$$

$$\{0, \pi\}$$

$$13) -2 + 4\cos \theta = -2$$

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

$$14) \frac{-9 + \sqrt{3}}{3} = -3 + \frac{1}{3} \cdot \tan \theta$$

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

$$15) 5 - \frac{1}{4} \cdot \tan \theta = 5$$

$$\{0, \pi\}$$

$$16) 10 = 4 - 3\sin \theta$$

No solution.

$$17) 4 - \frac{1}{3} \cdot \sin \theta = \frac{13}{3}$$

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

$$18) 4 - \tan \theta = 4$$

$$\{0, \pi\}$$

$$19) 3 - \frac{1}{4} \cdot \cos \theta = 3$$

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

$$20) -5 - 4\tan \theta = -1$$

$$\left\{ \frac{3\pi}{4}, \frac{7\pi}{4} \right\}$$