

Simple Trig Equations

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

1) $3 + \sin \theta = 2$

2) $-2 = -2 + \tan \theta$

3) $2\cos \theta = 1$

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

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

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

7) $-2 = -2 + \sin \theta$

8) $3\tan \theta = 3\sqrt{3}$

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

10) $-4 = -3 + \tan \theta$

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

11) $4 = 5 + \tan \theta$

12) $-3 + \tan \theta = \frac{-9 + \sqrt{3}}{3}$

$$13) -1 + \sin \theta = \frac{-2 + \sqrt{2}}{2}$$

$$14) 1 = -\tan \theta$$

$$15) -8\sin \theta = 4\sqrt{2}$$

$$16) 4\sqrt{3} = -8\cos \theta$$

$$17) -3\tan \theta = 0$$

$$18) \frac{2}{5}\cos \theta = -\frac{\sqrt{3}}{5}$$

$$19) 2 + \tan \theta = \frac{6 - \sqrt{3}}{3}$$

$$20) \sqrt{3} = -2\sin \theta$$

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

$$21) 4\tan \theta = 0$$

$$22) -2\cot \theta = -2\sqrt{3}$$

$$23) \frac{1}{2}\csc \theta = -1$$

$$24) 4\sin \theta = 0$$

$$25) 4\csc \theta = -8$$

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

26) $-2 = -4\sec \theta$

27) $2 + \sin \theta = 2$

28) $-8\cos \theta = -4\sqrt{3}$

29) $12\sec \theta = -8\sqrt{3}$

30) $-\frac{3}{4}\tan \theta = -\frac{\sqrt{3}}{4}$

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

1) $3 + \sin \theta = 2$

{270}

2) $-2 = -2 + \tan \theta$

{0, 180}

3) $2\cos \theta = 1$

{60, 300}

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

{150, 210}

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

{120, 240}

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

{60, 300}

7) $-2 = -2 + \sin \theta$

{0, 180}

8) $3\tan \theta = 3\sqrt{3}$

{60, 240}

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

{60, 120}

10) $-4 = -3 + \tan \theta$

{135, 315}

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

11) $4 = 5 + \tan \theta$

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

12) $-3 + \tan \theta = \frac{-9 + \sqrt{3}}{3}$

{ $\frac{\pi}{6}, \frac{7\pi}{6}$ }

$$13) -1 + \sin \theta = \frac{-2 + \sqrt{2}}{2}$$
$$\left\{\frac{\pi}{4}, \frac{3\pi}{4}\right\}$$

$$14) 1 = -\tan \theta$$

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

$$15) -8\sin \theta = 4\sqrt{2}$$
$$\left\{\frac{5\pi}{4}, \frac{7\pi}{4}\right\}$$

$$16) 4\sqrt{3} = -8\cos \theta$$
$$\left\{\frac{5\pi}{6}, \frac{7\pi}{6}\right\}$$

$$17) -3\tan \theta = 0$$
$$\{0, \pi\}$$

$$18) \frac{2}{5}\cos \theta = -\frac{\sqrt{3}}{5}$$
$$\left\{\frac{5\pi}{6}, \frac{7\pi}{6}\right\}$$

$$19) 2 + \tan \theta = \frac{6 - \sqrt{3}}{3}$$
$$\left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$$

$$20) \sqrt{3} = -2\sin \theta$$
$$\left\{\frac{4\pi}{3}, \frac{5\pi}{3}\right\}$$

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

$$21) 4\tan \theta = 0$$
$$\{0, 180\}$$

$$22) -2\cot \theta = -2\sqrt{3}$$
$$\{30, 210\}$$

$$23) \frac{1}{2}\csc \theta = -1$$
$$\{210, 330\}$$

$$24) 4\sin \theta = 0$$
$$\{0, 180\}$$

$$25) 4\csc \theta = -8$$
$$\{210, 330\}$$

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

26) $-2 = -4\sec \theta$

No solution.

27) $2 + \sin \theta = 2$

$\{0, \pi\}$

28) $-8\cos \theta = -4\sqrt{3}$

$\left\{\frac{\pi}{6}, \frac{11\pi}{6}\right\}$

29) $12\sec \theta = -8\sqrt{3}$

$\left\{\frac{5\pi}{6}, \frac{7\pi}{6}\right\}$

30) $-\frac{3}{4}\tan \theta = -\frac{\sqrt{3}}{4}$

$\left\{\frac{\pi}{6}, \frac{7\pi}{6}\right\}$