

## Evaluating & Solving all six Trig Functions

Find the exact value of each trigonometric function.

1)  $\csc -\frac{31\pi}{6}$

2)  $\tan -\frac{23\pi}{4}$

3)  $\cot \frac{17\pi}{6}$

4)  $\csc \frac{16\pi}{3}$

5)  $\cos -1020^\circ$

6)  $\sec 135^\circ$

7)  $\sin 690^\circ$

8)  $\cot -30^\circ$

9)  $\cos 585^\circ$

10)  $\cot 675^\circ$

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

11)  $\frac{2\sqrt{3}}{3} = \sec \theta$

12)  $\cot \theta = 0$

$$13) \cos \theta = -\frac{\sqrt{2}}{2}$$

$$14) \tan \theta = -\frac{\sqrt{3}}{3}$$

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

$$15) \tan \theta = 1$$

$$16) \sec \theta = \sqrt{2}$$

$$17) \csc \theta = -\frac{2\sqrt{3}}{3}$$

$$18) -4 - \cos \theta = \frac{-8 - \sqrt{2}}{2}$$

$$19) 2 + \frac{1}{4} \cdot \tan \theta = 2$$

$$20) 1 - 2\sec \theta = -3$$

$$21) 3 - \frac{3}{2} \cdot \tan \theta = \frac{6 + \sqrt{3}}{2}$$

$$22) 3 - \frac{3}{4} \cdot \cot \theta = \frac{12 - \sqrt{3}}{4}$$

$$23) -4 + \frac{7}{5} \cdot \sec \theta = \frac{-20 - 2\sqrt{3}}{5} + 2\sec \theta$$

$$24) -2 + 5\csc \theta = -4\sqrt{3} - 2 - 3\csc \theta$$

## Answers to Evaluating & Solving all six Trig Functions

1) 2

2) 1

3)  $-\sqrt{3}$

4)  $-\frac{2\sqrt{3}}{3}$

5)  $\frac{1}{2}$

6)  $-\sqrt{2}$

7)  $-\frac{1}{2}$

8)  $-\sqrt{3}$

9)  $-\frac{\sqrt{2}}{2}$

10) -1

11) {30, 330}

12) {90, 270}

13) {135, 225}

14) {150, 330}

15)  $\left\{\frac{\pi}{4}, \frac{5\pi}{4}\right\}$

16)  $\left\{\frac{\pi}{4}, \frac{7\pi}{4}\right\}$

17)  $\left\{\frac{4\pi}{3}, \frac{5\pi}{3}\right\}$

18)  $\left\{\frac{\pi}{4}, \frac{7\pi}{4}\right\}$

19) {0,  $\pi$ }

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

21)  $\left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$

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

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

24) No solution.