



8. A slide 4.4 m long makes an angle of  $33^\circ$  with the ground. How high is the top of the slide above the ground?

$$\sin 33 = \frac{x}{4.4}$$

$$x = 4.4 \sin 33$$

$$x = 2.4 \text{ meters}$$

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9. If  $\theta$  is an acute angle of a right triangle and  $\cos \theta = \frac{7}{25}$  find the values of the other five trigonometric functions of  $\theta$ .

$$\sin \theta = \frac{24}{25}$$

$$\csc \theta = \frac{25}{24}$$

$$\cot \theta = \frac{7}{24}$$

$$\tan \theta = \frac{24}{7}$$

$$\sec \theta = \frac{25}{7}$$

Find one positive angle and one negative angle that are coterminal with the given angle.

10.  $301^\circ$

$$\begin{aligned} +360 &= 661^\circ \\ -360 &= -59^\circ \end{aligned}$$

11.  $\frac{7\pi}{6}$

$$+2\pi = \frac{7\pi}{6} + \frac{12\pi}{6} = \frac{19\pi}{6}$$

$$-2\pi = \frac{7\pi}{6} - \frac{12\pi}{6} = -\frac{5\pi}{6}$$

12. Convert  $75^\circ$  to radian measure.

$$75^\circ \left( \frac{\pi}{180^\circ} \right) = \frac{5\pi}{12} \text{ radians}$$

13. Convert  $\frac{5\pi}{6}$  radians to degree measure.

$$\frac{5\pi}{6} \left( \frac{180}{\pi} \right) = 150^\circ$$

14. Find the arc length and area of a sector with a radius of 6 feet and a central angle of  $60^\circ$ .

$$S = r\theta$$

$$A = \frac{1}{2}r^2\theta$$

$$\theta = 60 \left( \frac{\pi}{180} \right) = \frac{\pi}{3}$$

$$S = 2\pi$$

$$A = 6\pi$$

15. The point  $(1, 3)$  is on the terminal side of an angle  $\theta$ . Find the six trigonometric functions.

$$\sin \theta = \frac{3}{\sqrt{10}}$$

$$\cos \theta = \frac{1}{\sqrt{10}}$$

$$\tan \theta = 3$$

$$\csc \theta = \frac{\sqrt{10}}{3}$$

$$\sec \theta = \sqrt{10}$$

$$\cot \theta = \frac{1}{3}$$

16. Find the reference angle for  $-276^\circ$ .

$$360 - 276 = 84^\circ$$

17. Find the reference angle for  $\frac{5\pi}{3}$ .

$$\frac{5\pi}{3} - 2\pi = \frac{5\pi}{3} - \frac{6\pi}{3} = -\frac{\pi}{3}$$

18. Find the value of  $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$ . Express your answer in degrees.

$$60^\circ$$

19. Find the exact value of  $\cos^{-1}\left(-\frac{1}{\sqrt{2}}\right)$

$$\text{ref } \theta = 45^\circ \text{ in Quadrant II}$$

$$\cos^{-1}\left(-\frac{1}{\sqrt{2}}\right) = 90 + 45 = 135^\circ$$

Use a calculator to evaluate the expression. Round your answer to three significant digits.

20.  $\cos^{-1}(-0.35) = 110$

21.  $\tan^{-1}16 = 86.4$

Solve the equation for  $\theta$ . Round your answer to three significant digits.

22.  $\sin \theta = 0.6; 90^\circ < \theta < 180^\circ$

$$\text{ref Angle} = 36.9^\circ \quad \theta = 180 - 36.9 = 143^\circ$$

23.  $\tan \theta = 5.6; 180^\circ < \theta < 270^\circ$

$$\text{ref Angle} = 79.87$$

$$\theta = 180 + 79.87 = 259.87$$

$$\theta = 260^\circ$$

