Introduction to Trigonometry Worksheet

Degrees, Radians and Special Triangles

1. Give the complement and supplement of each angle

   a. $40°$ b. $110°$ c. θ

2. Covert $45°$ to radians

3. Covert $450°$ to radians

4. Covert $\frac{\pi}{6}$ to degrees.

5. Covert $\frac{4\pi}{3}$ to degrees.

6. If the shortest side of a $30°$-$60°$-$90°$ triangle is 5, find the other two sides.

7. A ladder is leaning against a wall. The top of the ladder is 4 feet above the ground and the bottom of the ladder makes an angle of $60°$ with the ground. How long is the ladder, and how far from the wall is the bottom of the ladder?

Trigonometric Functions

1. Find the sine and cosine of 45°.

2. Find the sine, cosine and tangent of $\frac{\pi}{3}$.

3. Find the six trigonometric functions of θ if θ is in standard position and the point (-2, 3) is on the terminal side of θ.

4. Find the six trigonometric ratios of $\frac{3\pi}{2}$.

5. .If $\sin\theta = -\frac{5}{13}$, and θ terminates in quadrant III, find cos θ and tan θ.

Graphing: Amplitude and Period

1. Sketch the graph of $y = \cos x$.

2. Sketch the graph of $y = 2\sin x$ for $0 \le x \le 2\pi$.

3. Sketch one complete cycle of the graph of $y = \frac{1}{2}\cos x$.

4. Graph $y = \sin 2x$ for $0 \le x \le 2\pi$.

5. Sketch the graph of $y = \csc x$

Graphing: Phase Shift

1. Sketch the graph of $y = \sin\left(x + \frac{\pi}{2}\right)$ if $-\frac{\pi}{2} \le x \le \frac{3\pi}{2}$.

2. Graph on complete cycle of $y = \sin\left(x - \frac{\pi}{2}\right)$.

3. Graph $y = 2\cos(3x + \pi)$ from $x = -\frac{2\pi}{3}$ to $x = \frac{2\pi}{3}$.

4. Graph on complete cycle of $y = 4\sin\left(2x - \frac{\pi}{3}\right)$.

Inverse Trigonometric Functions

1. Evaluate in radians without using a calculator or tables

a. $\sin^{-1}\frac{1}{2}$ b. $\arccos\left(-\frac{\sqrt{3}}{2}\right)$ c. $\tan^{-1}(-1)$

2. Evaluate $\sin\left(\tan^{-1}\frac{3}{4}\right)$ without using a calculator.

3. Evaluate

a. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$ b. $\tan^{-1}(1)$

c. $\sin^{-1}\left(-\frac{1}{2}\right)$ d. $\tan\left(\sin^{-1}\frac{3}{5}\right)$