

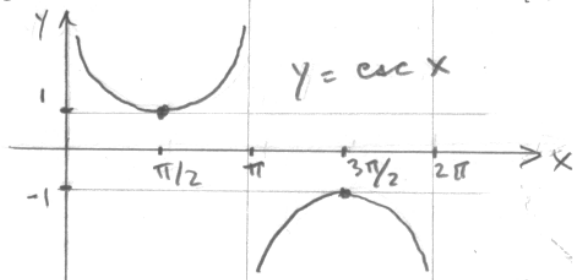
SHOW YOUR WORK FOR FULL CREDIT.

1. Find the period and amplitude of the graph of $y = -5 \sin(3x - \frac{\pi}{4})$.

$$0 \leq 3x - \frac{\pi}{4} \leq 2\pi \quad \left\{ \begin{array}{l} \frac{\pi}{12} \leq x \leq \frac{9\pi}{12} \\ \text{PERIOD: } \frac{8\pi}{12} = \frac{2\pi}{3} \end{array} \right. \quad \left. \begin{array}{l} \text{AMPLITUDE: } 5 \end{array} \right.$$

$$\frac{\pi}{4} \leq 3x \leq \frac{9\pi}{4}$$

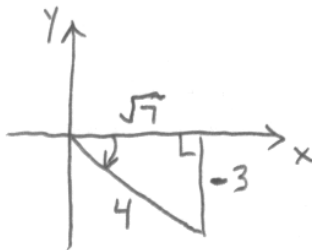
2. Sketch a graph of the function $\csc x$ on the interval $[0, 2\pi]$.



3. Use a calculator to approximate the expression $\sin^{-1}(-.125)$.

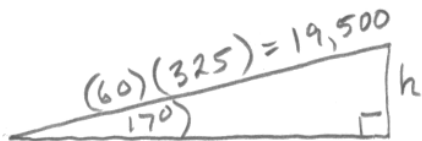
$$\sin^{-1}(-.125) = -.1253$$

4. Find the exact value of the expression $\tan[\arcsin(-\frac{3}{4})]$.



$$\tan[\arcsin(-\frac{3}{4})] = -\frac{3}{\sqrt{7}} = -\frac{3\sqrt{7}}{7}$$

5. During takeoff, an airplane's angle of climb is 17° and its speed is 325 feet per second. Find the plane's altitude, in feet, after one minute.



$$\frac{h}{19,500} = \sin 17^\circ$$

$$h = 19,500 \sin 17^\circ$$

$$h = 5701 \text{ feet}$$