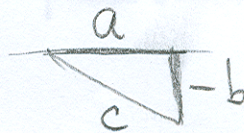


Name Solution

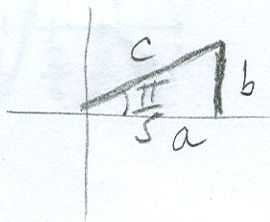
Find the exact value of the expression. Do not use a calculator.

1) $\tan^{-1} \left[\tan \left(-\frac{\pi}{8} \right) \right]$



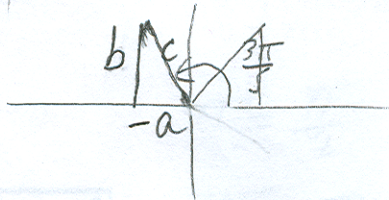
1) $\frac{-\pi}{8}$

2) $\sin^{-1} \left[\sin \left(\frac{\pi}{5} \right) \right]$



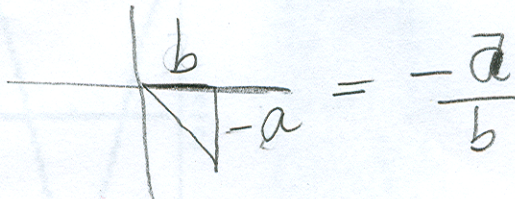
2) $\frac{\pi}{5}$

3) $\sin^{-1} \left[\sin \left(\frac{3\pi}{5} \right) \right] = \frac{2\pi}{5}$



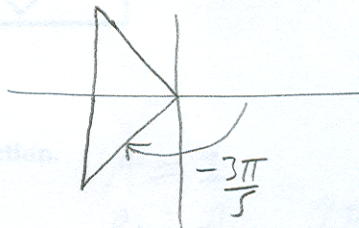
3) $\frac{2\pi}{5}$

4) $\tan^{-1} \left[\tan \left(-\frac{a}{b} \right) \right]$



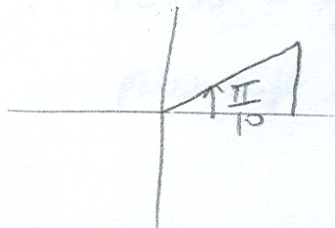
4) $\frac{-a}{b}$

5) $\cos^{-1} \left[\cos \left(-\frac{3\pi}{5} \right) \right] =$



5) $\frac{3\pi}{5}$

6) $\cos^{-1} \left[\cos \left(\frac{\pi}{10} \right) \right]$



6) $\frac{\pi}{10}$

Write the equation of a sine function that has the given characteristics.

- 7) Amplitude: 4
- Period: π
- Phase Shift: -2

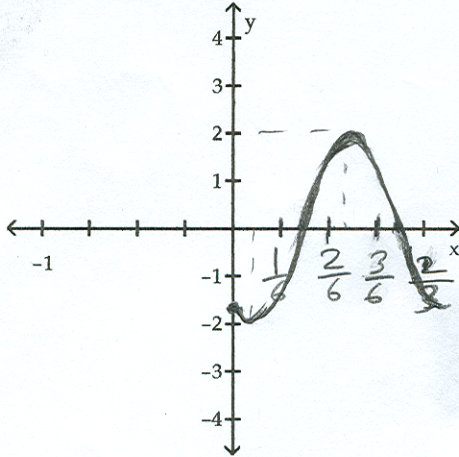
$y = 4 \sin(2x + 4)$

$T = \frac{2\pi}{\omega} \Rightarrow \pi = \frac{2\pi}{\omega} \Rightarrow \omega\pi = 2\pi \Rightarrow \omega = 2$

$\frac{\phi}{\omega} = -2 \Rightarrow \phi = -2\omega = -2(2) = -4$

Graph the function. Show at least one period.

8) $y = 2 \sin(3\pi x - 2)$



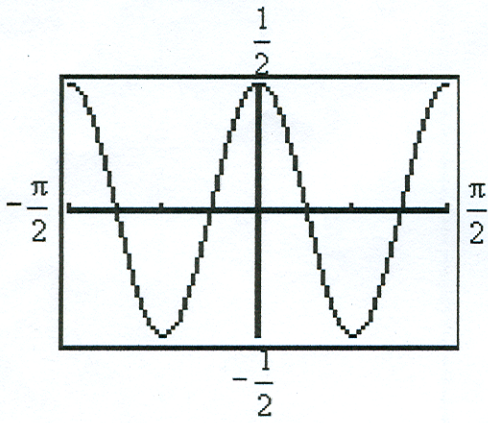
$A = 2$

Phase shift

Period = $\frac{2\pi}{3\pi} = \frac{2}{3}$

Phase shift $\frac{2}{3\pi}$ Right

Find an equation for the graph.



$T = \frac{\pi}{2}$

$\frac{2\pi}{\omega} = \frac{\pi}{2}$

$\omega\pi = 4\pi$

$\omega = 4$

$A = \frac{1}{2}$

$y = A \cos(\omega x)$

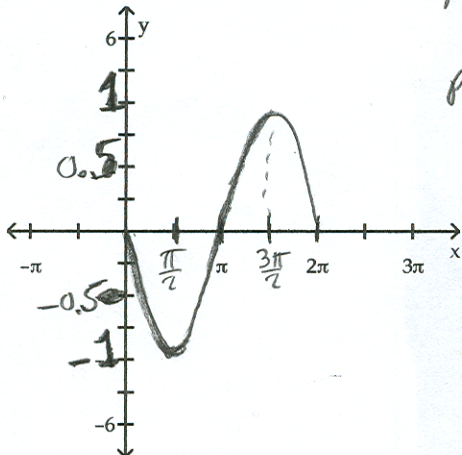
$A = \frac{1}{2} \cos(4x)$

9)

9) _____

Use transformations to graph the function.

10) $y = \cos(x + \frac{\pi}{2})$



$A = 1$

Period = $\frac{2\pi}{\omega} = 2\pi$

Phase shift = $-\frac{\pi/2}{1} = -\frac{\pi}{2}$

10)