

Determine the amplitude, period, phase shift and vertical shift for each function. Make sure to label all significant coordinates and asymptotes.

$$y = 3 \sin x$$

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$$y = \sin 2\pi x + 3$$

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$$y = 2 \cos \left(x - \frac{\pi}{4} \right)$$

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$$y = -2 \cos 4 \left(x - \frac{\pi}{8} \right) - 2$$

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$$y = \sec 2(x + \pi) + 2$$

Determine the amplitude, period, phase shift and vertical shift for each function. Make sure to label all significant coordinates and asymptotes.

$$y = 2 \csc \left(x + \frac{\pi}{4} \right)$$

Determine the amplitude, period, phase shift and vertical shift for each function. Make sure to label all significant coordinates and asymptotes. Then graph 2 periods of the function.

$$y = 2 \tan \frac{\pi}{2} (x + 1) - 1$$

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$$y = \cot 3\left(x - \frac{\pi}{3}\right)$$

Write the equation of the sine function give the following information.

Amplitude = 4, Period = 3π

On a particular day, the depth of water in feet at the entrance to a harbor is modeled by the function $d(t) = 8 + 4 \sin 0.5t$, where t is hours after 6 A.M.

a. What are the minimum and maximum depths on this day? What times do they happen?

Maximum Depth _____

Time it occurs _____

Minimum Depth _____

Time it occurs _____

b. Edgar has a boat that needs at least 6 feet of water. During what times after 6 A.M. and before 7 P.M. will the water at the entrance to the harbor be less than 6 feet deep? Write and solve an equation to help you answer the question.