

Given Information:

A certain city has a cycle of high tide to low tide in 8 hours. The height of the tide varies by 10 feet.

Goal:

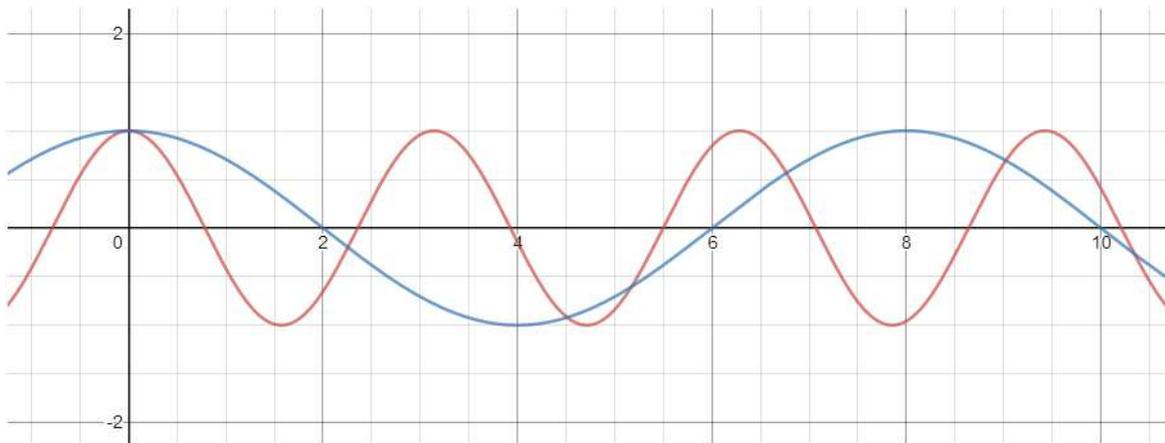
Write a trigonometric function for cosine that models the height of the tide and uses the variable  $t$ , for time, such that the graph starts at high tide when  $t = 0$ .

1) Make a sketch of the required cosine function.

2) Use the graphs of the two functions below to help you.

1   $y = \cos 2x$

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



3) Use <http://www.Desmos.com> to check to see if your solution is correct (matches your sketch).

4) Solution:  $h(t) =$