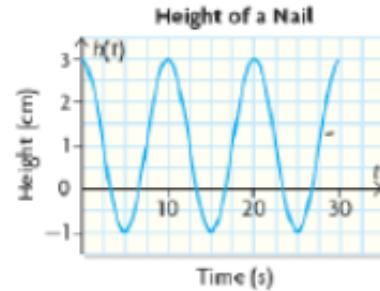


Investigating Models of Sinusoidal Functions

Example 1:

a) Determine an equation for the following graph:



b) Is there another equation that could be used?

c) Hector says that the equation is actually $h(t) = -2 \sin[36t - 90] + 1$, but Briana says that the equation should be $h(t) = -2 \cos[36(t - 5)] + 1$. Who is correct? ***Explain.***

Example 2: A sinusoidal function has an amplitude of 2 units, a period of 180° , and a maximum at $(0, 3)$. Represent the function with an equation in two different ways.

Example 3: Matthew is riding a Ferris wheel at a constant speed of 10 km/h. The boarding height for the wheel is 1 m, and the wheel has a radius of 7 m. What is the equation of the function that describes Matthew's height in terms of time, assuming Matthew starts at the highest point on the wheel?