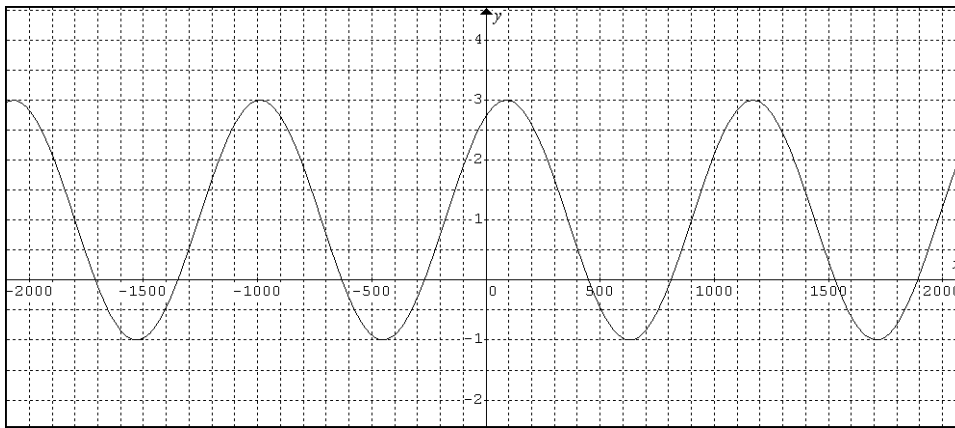


Sinusoidal Functions

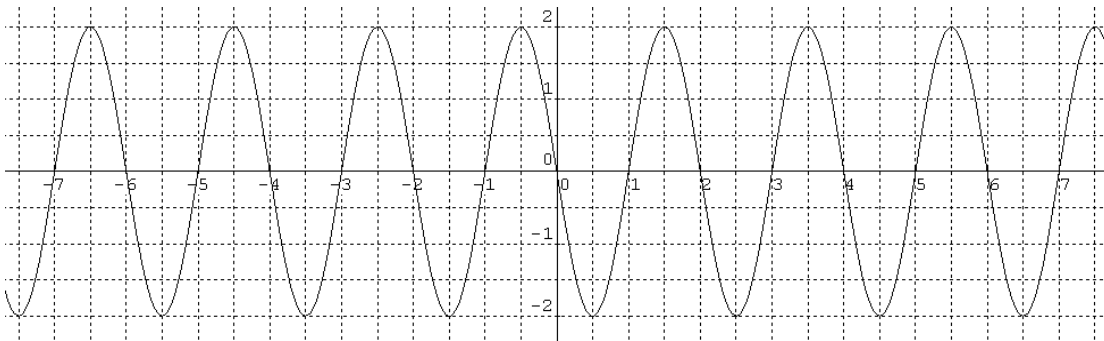
The general form of a sinusoidal function is modelled by $y = a \sin[b(x-d)] + c$ where a is the amplitude, $\frac{360^\circ}{b}$ is the period, d is a phase-shift and c is a vertical translation.

Example 1: Graph the function $y = 2 \cos\left(\frac{1}{3}(x - 90^\circ)\right) + 1$

Amplitude: 2 Period: $\frac{360}{\frac{1}{3}} = 1080^\circ$ Phase Shift: 90° Vertical: +1



Example 2: Use the graph to determine the equation.



From the graph,

The amplitude is 2. ($a = 2$)

There is a phase shift of 1 to the right.

The period is 2. $\left(2 = \frac{360}{b} \rightarrow b = 180\right)$

Thus the equation is $y = -2 \sin 180^\circ(x - 1)$

Homework: pg. 34 #4, 5, 12, 13, 15, 16