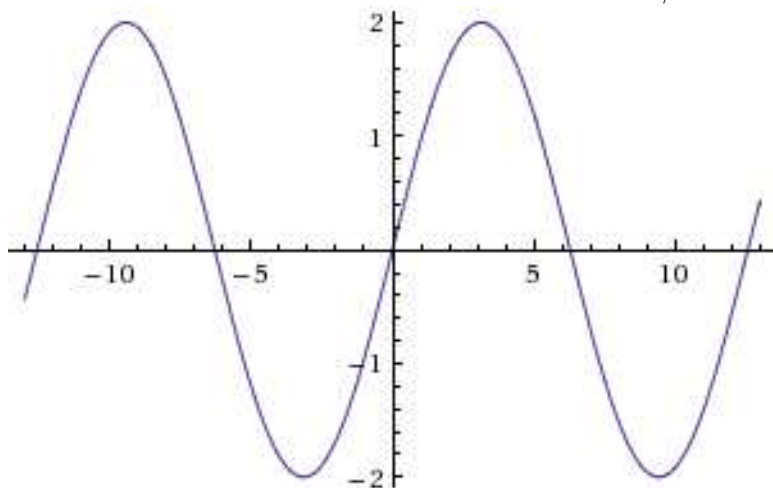


- 1 Draw a graph in  $(x, y)$  of the equation

$$y = 2 \sin\left(\frac{1}{2}x\right).$$

Draw enough to show the entire pattern, and label coordinates on at least three points with different  $y$ -values.

The amplitude is 2, the average is 0, and the period is  $\frac{2\pi}{1/2} = 4\pi$ . The graph looks like this:



Three points on it are  $(0, 0)$  (the origin),  $(\pi, 2)$  (the first local maximum on the positive side), and  $(3\pi, -2)$  (the first local minimum on the positive side).

- 2 Write a formula for a sinusoidal function with amplitude 3 and period  $\pi$ . (There are several possible answers to this question, but one that goes through  $(0, 0)$  is probably the easiest.)

Since the period is  $\pi$ , the angular frequency is  $\frac{2\pi}{\pi} = 2$ . Therefore, the simplest formula is

$$y = 3 \sin 2x.$$

- 3 Give the  $y$ -intercept of the graph with the equation

$$y = \tan x.$$

Since  $\tan 0 = 0$ , the  $y$ -intercept is  $(0, 0)$  (or  $y = 0$ ).