This is the graph of a sine function: it has the repeating hill and valley pattern and passes through the origin. The amplitude of this graph and  $y = 4\sin 2x$  is 4. This graph has 2 cycles in the interval  $[0, 2\pi]$ , or a period of  $\pi$ . The same is true for  $y = 4\sin 2x$ , so the graph and the function match.