

You may have thought that the amplitude was the height of the whole curve, but it is just the height of one hill. Another way to say this is that the amplitude of  $y = a \sin bx$  is given by  $|a|$ . Perhaps you thought that the 3 in front of the  $x$  would make the period 3 times as long, but it does just the opposite. The period equals  $\frac{2\pi}{|b|}$ .