Precalculus
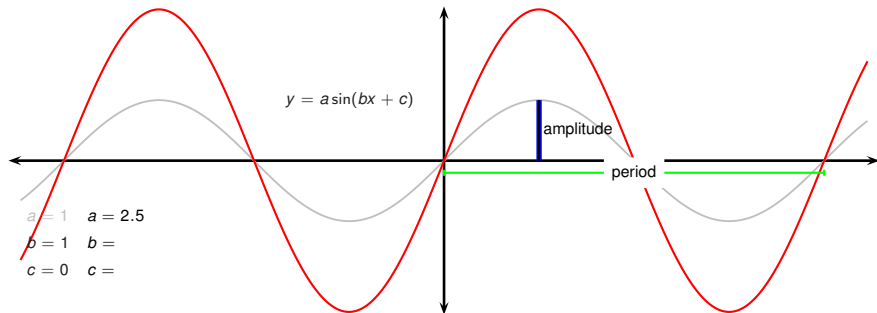## Generate a formula from sine/cosine graph, amplitude, period and phase modified

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- The graph of $a\sin(bx + c)$ is referred to as a "wave".

Definition (Phase, period, frequency, amplitude of a wave)

In the function $a\sin(bx + c)$, the number $|a|$ is called the *amplitude* of the wave, the number $\frac{b}{2\pi}$ is called the *frequency* of the wave, the number $\frac{2\pi}{b}$ is called the *period* of the wave, the number c is called the *phase* of the wave.

- What happens when we change the amplitude? The frequency/period? The phase?

$y = a\sin(bx + c)$

amplitude

period

$a = 1$ $a = 2.5$
$b = 1$ $b =$
$c = 0$ $c =$

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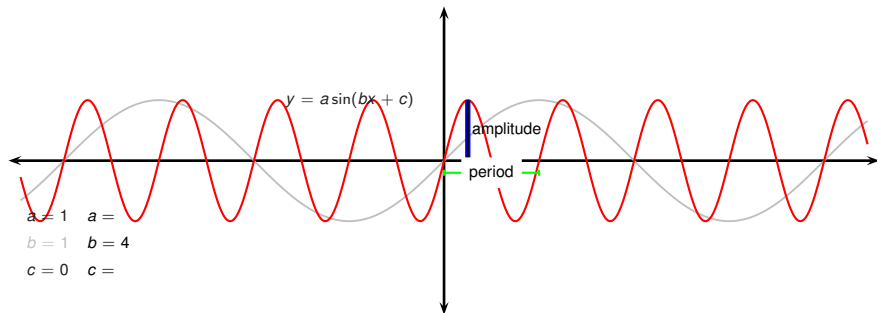

$y = a\sin(bx + c)$

amplitude

period

$a = 1 \quad a =$
$b = 1 \quad b = 4$
$c = 0 \quad c =$

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- What happens when we change the amplitude? The frequency/period? The phase?

$y = a\sin(bx + c)$

amplitude

$\frac{c}{b}$ period

$a = 1$ $a =$
$b = 1$ $b = 1.5$
$c = 0$ $c = 2.4$