$y = a \sin [b(X - h)] + k$

VERTICAL STRETCH/COMPRESSION (AMPLITUDE)

- Also known as the "amplitude"
- The number of units the graph goes above/below the axis (halfway line)
- If "a" is negative (–), then the wave is vertically reflected (flipped upside down)

$$amplitude = \frac{\max - \min}{2}$$

HORIZONTAL STRETCH/COMPRESSION

- Changes the period length
- The value of "b" tells you how many waves can fit in 360˚

$$period\_length = \frac{360°}{b}$$

HORIZONTAL TRANSLATION (PHASE SHIFT)

- Also known as the "phase shift"
- The number of units (degrees) the entire graph shifts left/right

VERTICAL TRANSLATION (AXIS)

- Also known as the "axis"
- The halfway line of the wave
- The number of units the entire graph shifts up/down

$$axis = \frac{\max + \min}{2}$$