

12/13 4.4 day 1 ex 1-3

Goal: Be able to describe and graph vertical/horizontal dilations of sine & cosine.

General Equation

Sine: $y = a \sin(bx + c) + d$

Cosine: $y = a \cos(bx + c) + d$

Amplitude = $|a|$ - vertical distance from the sinusoidal axis

$|a| > 1$ the graph is vertically expanded

$0 < |a| < 1$ the graph is vertically compressed

Period = $\frac{2\pi}{b}$

$|b| > 1$ the graph is compressed horizontally

$0 < |b| < 1$ the graph is expanded horizontally

Graph:

① Calculate the period

② Find the Critical Point Spacing (CPS) = $\frac{\text{per}}{4}$ (horizontal distance between max, min + sinusoidal axis)

③ Plot + label the Starting Point (x, y) or SP

④ Graph 2 cycles