

Sine and Cosine Graph with Translations

In general:

$$y = \pm a \cdot \sin(bx - c) + d$$

neg: reflects the x-axis
amplitude: $|a|$
vertical shrink/stretch

period:
 $\frac{2\pi}{b}$ or $\frac{360^\circ}{b}$

horizontal/phase shift
 $bx - c = 0$
 $b\theta - c = 0^\circ$

vertical shift

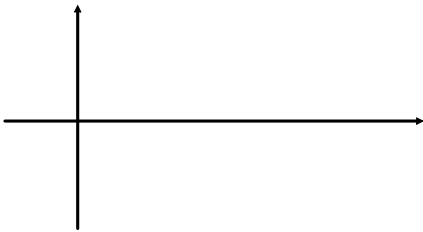
$$y = \pm a \cdot \cos(bx - c) + d$$

Domain:
[phase shift, $\frac{bx - c = 2\pi}{b\theta - c = 360^\circ}$]

Graphing Prep and Checklist:

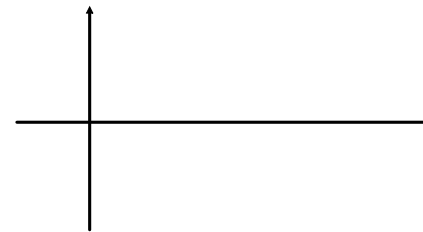
- amplitude:
- period:
- phase shift:
- vertical shift:
- domain:
- range:
- even or odd?

1) $y = -\frac{1}{2} \sin x + 2$



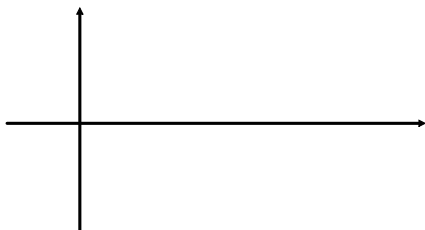
- amplitude:
- period:
- phase shift:
- vertical shift:
- domain:
- range:
- even or odd?

2) $y = 1 + 3 \cos \theta$



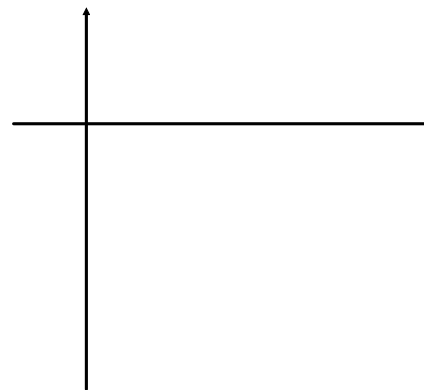
- amplitude:
- period:
- phase shift:
- vertical shift:
- domain:
- range:
- even or odd?

3) $y = 2 - \sin\left(\frac{\pi x}{4}\right)$



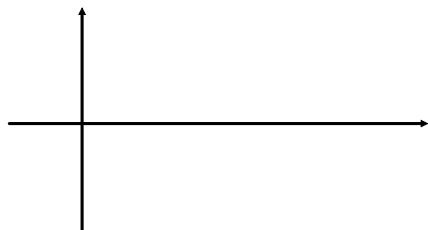
amplitude:
 period:
 phase shift:
 vertical shift:
 domain:
 range:
 even or odd?

4) $y = 2 \sin(3\theta - 270^\circ) - 4$



amplitude:
 period:
 phase shift:
 vertical shift:
 domain:
 range:
 even or odd?

5) $y = 3 \cos\left(x + \frac{\pi}{4}\right)$



amplitude:
 period:
 phase shift:
 vertical shift:
 domain:
 range:
 even or odd?