

Describe the transformations represented in each equation:

$$y = -3(x - 5)^2 + 6$$

x-axis Refl
 5 RIGHT
 6 up
 Vert. Stretch factor 3

$$y = 8\sqrt{x+1} - 5$$

1 Left
 5 down
 Vert stretch factor 8

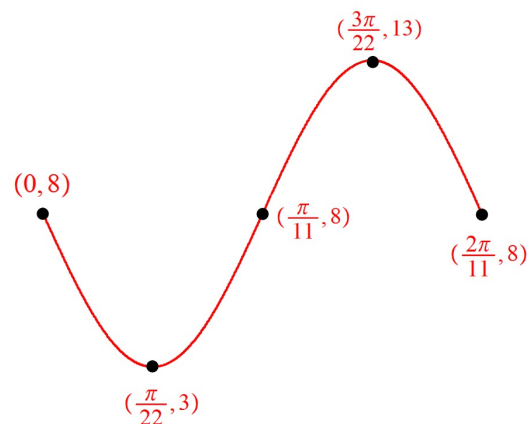
Describe the transformations represented in each equation:

$$y = 7\sin(x - \frac{\pi}{3}) + 4$$

$\frac{\pi}{3}$ RIGHT
 4 up
 Vert stretch factor 7

$$y = -3\sin(5x) - 6$$

period = $\frac{2\pi}{5}$
 6 down
 { x-axis Refl
 v. stretch factor 3



Amplitude = 5

Period = $\frac{2\pi}{11}$

Midline: $y = 8$

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

$$y = a\cos(bx) + k$$

a Vertical stretch/shrink = Amplitude

b Horizontal stretch or shrink Period = $2\pi/b$

k Vertical shift = Midline $y = k$

Amplitude = 5

$$a = -5$$

Midline: $y = 8$

$$k = 8$$

$$\text{Period} = \frac{2\pi}{11}$$

$$b = \frac{2\pi}{\frac{2\pi}{11}} = 2\pi \cdot \frac{11}{2\pi} = 11$$

EQ: $y = -5 \sin 11x + 8$

$(0, 8)$

$(\frac{\pi}{22}, 3)$

$(\frac{\pi}{11}, 8)$

$(\frac{2\pi}{11}, 8)$

$(\frac{3\pi}{22}, 13)$

Find the Amplitude, Period, and Midline of this Sine Function:

y

$(\frac{\pi}{8}, 5)$

$(\frac{5\pi}{8}, 5)$

$(\frac{3\pi}{8}, -1)$

$(\frac{7\pi}{8}, -1)$

Amplitude = 3

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

Midline: $y = 2$

$a = 3$

$b = 4$

$k = +2$

Equation: $y = 3 \sin(4x) + 2$