Algebra 2 Bellwork Monday, March 23, 2015

1. Write the equation of the following transformations if the parent function $\text{Sin}x$

- Phase shift: $\frac{3\pi}{10}$ left.
- Period $= 9\pi$
- $x-axis$ reflection
- 8 units up
- Vertical Stretch factor of 4

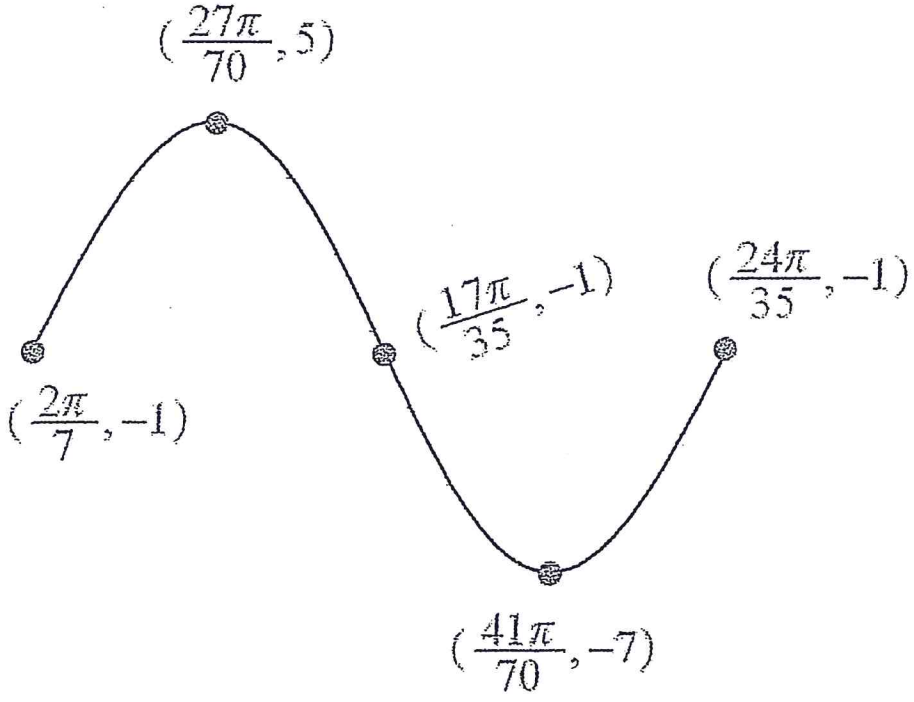
EQ:

2. State the amplitude, period, phase shift, and equation for the midline for each function.

a. $y = 10\text{Cos}(8(x-\frac{\pi}{3})) + 6$

b. $y = -\text{Sin}(7+3\pi) - 2$

3. Find the amplitude, period, and equation for the midline then write both a Sin and a Cos equation.



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ANSWERS

1. Write the equation of the following transformations if the parent function Sin$x$

- Phase shift: $\frac{3\pi}{10}$ left.
- Period $= 9\pi$ $b = \frac{2\pi}{9\pi} = \frac{2}{9}$
- $x-axis$ reflection
- 8 units up
- Vertical Stretch factor of 4

EQ: $y = -4\sin\left(\frac{2}{9}\left(x + \frac{3\pi}{10}\right)\right) + 8$

2. State the amplitude, period, phase shift, and equation for the midline for each function.

a. $y = 10\text{Cos}(8(x - \frac{\pi}{3})) + 6$

Amp $= 10$

period $= \frac{2\pi}{8} = \frac{\pi}{4}$

phase shift: $\pi/3$ RIGHT

midline: $y = 6$

b. $y = -\text{Sin}(7 + 3\pi) - 2 = -\sin\left(7\left(1 + \frac{3\pi}{7}\right)\right) - 2$

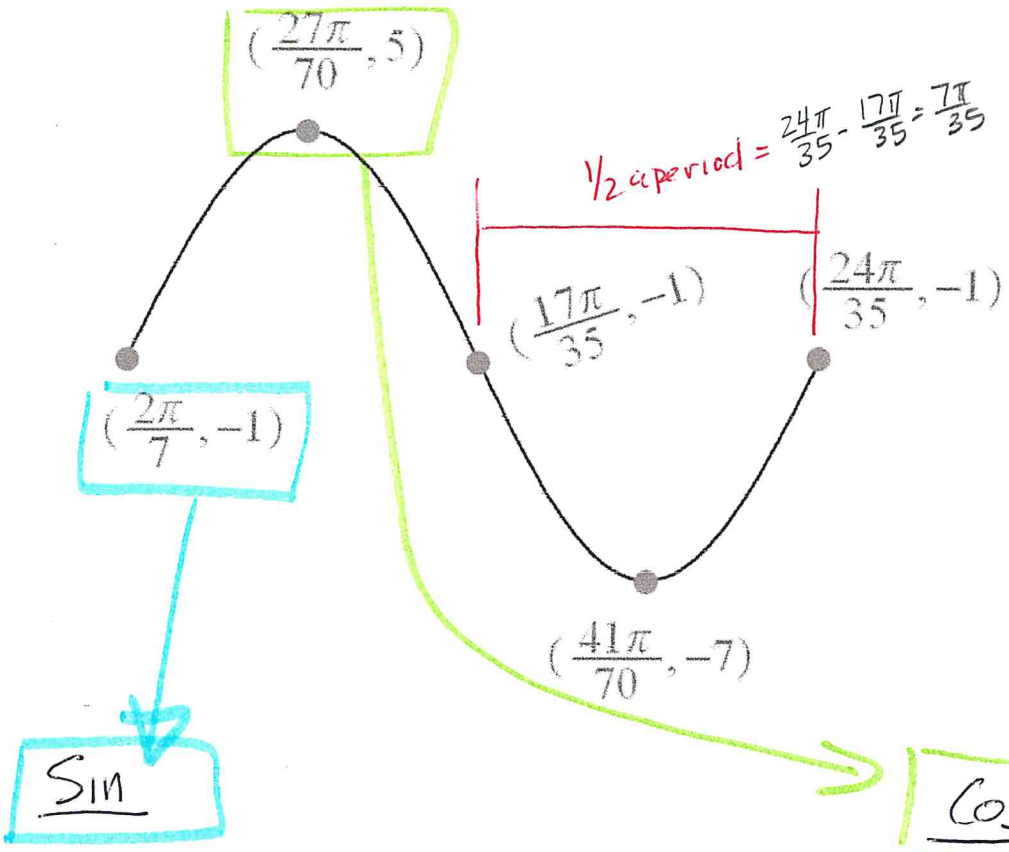
Amp $= 1$

period $= \frac{2\pi}{7}$

phase shift: $\frac{3\pi}{7}$ left

midline: $y = -2$

3. Find the amplitude, period, and equation for the midline then write both a Sin and a Cos equation.



midline: $y = -1$

Amplitude $= 6$

period $= \frac{7\pi}{35} \times 2 = \frac{14\pi}{35} = \frac{2\pi}{5}$

$b = 5$

Sin

$y = 6\sin\left(5\left(x - \frac{2\pi}{7}\right)\right) - 1$

Cos

$y = 6\cos\left(5\left(x - \frac{27\pi}{70}\right)\right) - 1$