Are there any Homework Questions you would like to see on the board?

pp. 373-375 #(4 – 6)def, 7b, 8cd, 11, 12cd, 13def **AND**
Work Ahead on the Chapter 6 Review (See Unit Outline)

Today's Learning Goal(s):

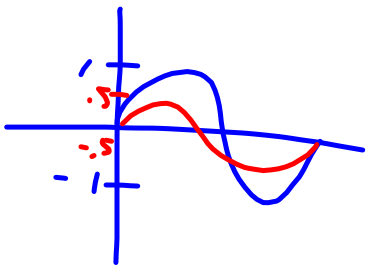
By the end of the class, I will be:

a) ready for the unit summative on sinusoidal functions.

p. 373

12. Predict the maximum and the minimum values of $f(x)$ for each sinusoidal function. Verify your answers using graphing technology.

d) $f(x) = 0.5 \sin x - 3$



→ 0.5 → -3 → max = -2.5

→ -0.5 → -3

∴ min = -3.5

Review Ideas

Periodic Behaviour vs. Sinusoidal Behaviour

The Sine function: $f(x) = a \sin(x - c) + d$

$a \rightarrow$ vertical stretch or compression
↳ if $a > 1$ ↳ if $0 < a < 1$
↳ reflection in the x-axis
↳ if $a < 0$

$c \rightarrow$ horizontal translation (left or right)

$d \rightarrow$ vertical translation (up or down)

Ex: $f(x) = -6\sin(x + 150°) - 7$

Equation of the axis: $y = -7$

Amplitude: 6

Period: $360°$

Domain: $\{x \in \mathbb{R}\}$

Range: $\{y \in \mathbb{R} \mid -13 \leq y \leq -1\}$

MCF 3MI

6.R Sinusoidal Functions Review

$f(x) = a \sin(x - c) + d$

Date: May 8/18

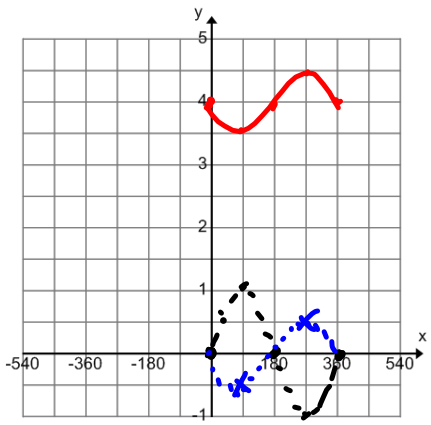
The following questions are taken from p. 379 of the textbook.

9. The function $f(x) = \sin(x)$ undergoes a reflection in the x-axis, a vertical compression by a factor of 0.5, and a vertical translation of 4 units.

a) What is the equation of the resulting function?

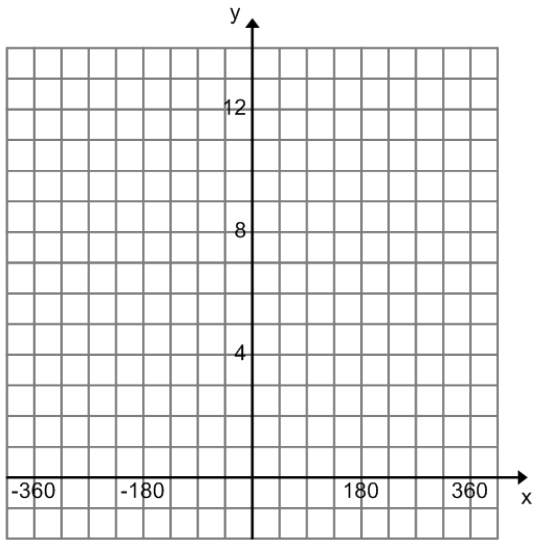
$f(x) = -0.5 \sin x + 4$

b) Sketch the resulting function on the graph provided



12. The height of a Ferris wheel is modeled by the function, $h(\theta) = 6\sin(\theta - 45°) + 7$, where $h(\theta)$ is in metres and θ is the number of degrees the wheel has rotated from the boarding position of the rider.

a) Sketch the graph of this function.



b) What is the range of the function?

c) What is the amplitude of the function, and what does it represent in this situation?

d) When the rider has rotated 400° (from the boarding position) how high above the ground is the rider?

Today's Homework:

p. 379 # 6 – 8, 10ace, 11ace, 12

(Note: for 11c, the sketch is incorrect in the text solution)