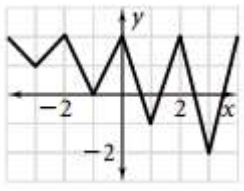
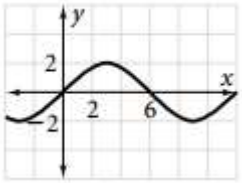
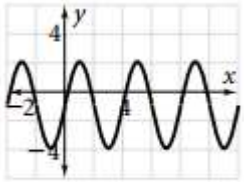
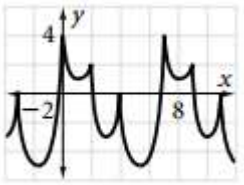
STATION A

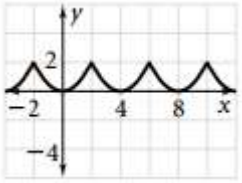
1. Given the following graphs:

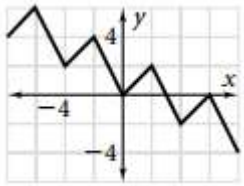
a) 

b) 

c) 

d) 

e) 

f) 

i) Which are periodic? _____

ii) which are sinusoidal?_____

STATION B

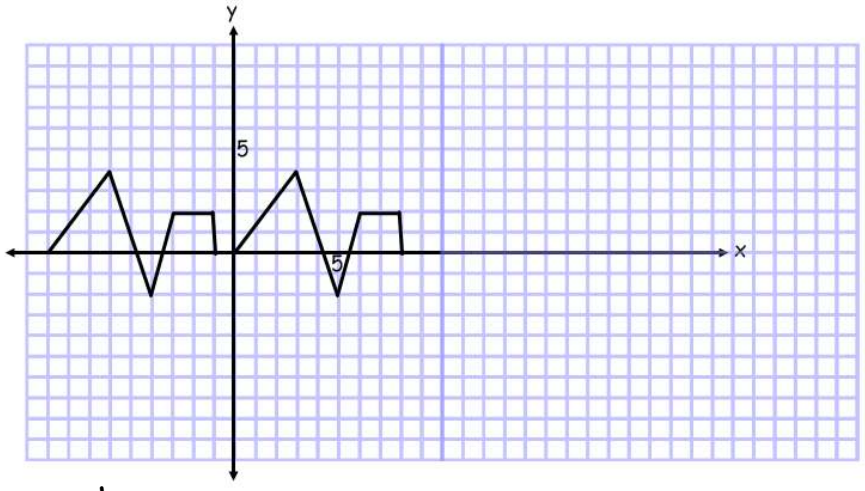
1. A periodic function goes through 5 complete cycles in 4 minutes. What is the period of the function?

2. The period of a periodic function is 8 seconds. How many cycles does it go through in 30 seconds?

3. The amplitude of a periodic function is 2.5 and its minimum value is 0. What is the function's maximum value?

STATION C

1. Given the graph of y=f(x), determine:



   a. amplitude_____

   b. period _____

   c. max value_____

   d. min value_____

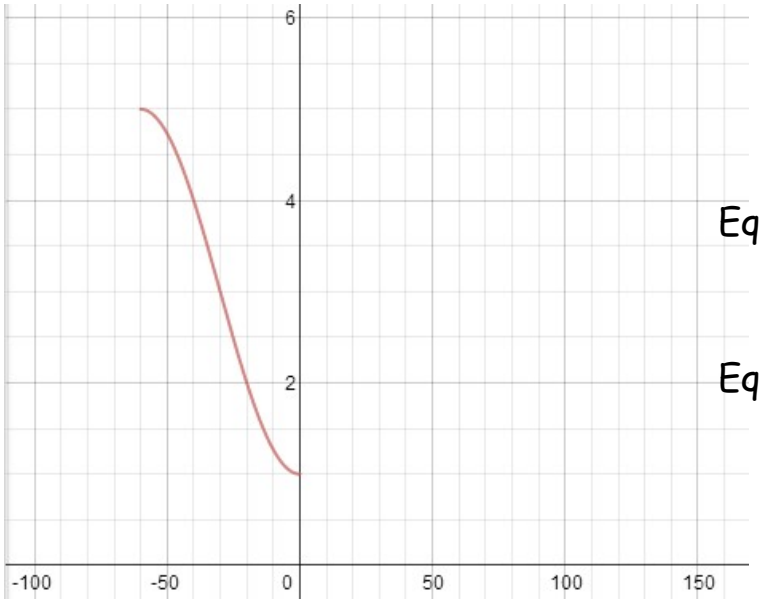
   e. f(-2) _____

   f. f(48) _____

   g. draw another cycle on the graph

STATION D

The graph below shows exactly **one half of a cycle** of a sinusoidal function. Determine TWO algebraic representations for the graph, one with sine one with cosine as the base function



Equation 1(sine):_____

Equation 2(cosine):_____

STATION E

Sketch the following functions :

a) $y = -3\sin(x - 30°) + 5$ for one full cycle

b) $y = \frac{1}{2}\cos(6x + 90) - 2 \quad 0 \le \theta \le 360°$

STATION F

A Ferris wheel, at the Carp fair, is 30 m in diameter. Riders board the ride from the bottom at a platform that is 5 m above ground level. Each revolution takes 80 seconds.

a) Graph the relation for 1 full cycle
b) Determine an equation that models the rider's height in metres above the ground over time in seconds.
c) The Carp fair administration has decided they want a bigger and faster Ferris wheel. Describe the differences of a new expression, compared to that in part b),that would model the new ride. Note that the rider will still be boarding at the bottom of the wheel.

STATION G

The depth, d, in metres, of water in a seaplane harbour on a given day can be modeled using the function $d(t) = 2\sin 30(t-6)+3$, where t is the time past midnight, in hours.

a) Determine the max and the min depths of the water in the harbour.

b) What is the period of the function?

c) Make a sketch of the water level over 24 hours.

d) If the water is less than 3 m deep, landing a seaplane is considered unsafe. During what time intervals, between midnight and midnight the following day, is it considered unsafe to land a seaplane?