

Name:

QUIZ – MATH GRADE 11 IB SL

1. (24%) Given the function $f(x) = -3\cos(2x) - 4$. Fill the blanks:

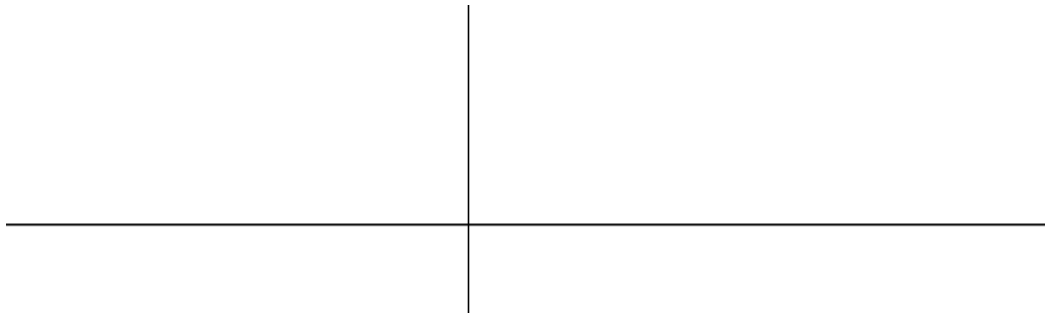
a. (2%) Amplitude = _____

c. (3%) Midline is: _____

b. (6%) Period = _____

d. (5%) Range: _____

e. (8%) Sketch 1 period on each side of the y axis. **Indicate on the graph the coordinates of y int, x int max and min.**



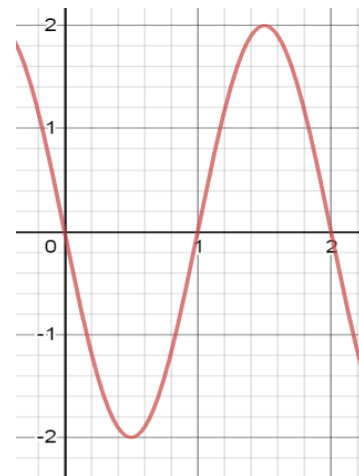
2. (30%) Given the function. Fill the blanks:

a. (4%) Amplitude = _____

b. (8%) Period = _____

c. (4%) Midline is: _____

d. (5%) Range: _____



e. (9%) The function can be written in the form $f(x) = A\sin(bx) + c$

$A =$ _____

$b =$ _____

$c =$ _____

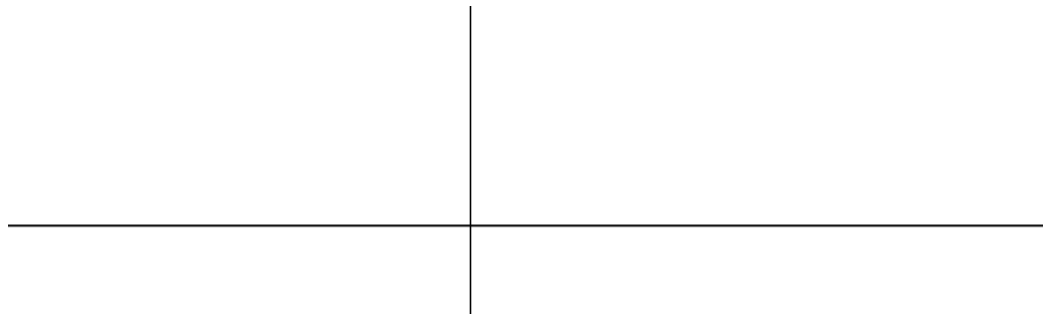
3. (10%) Given the function $f(x) = -10\cos(\frac{\pi}{112}x) - 1$. Determine the value of k for which the equation $f(x) = k$ has no solutions.

4. (36%) A formula for the temperature T in $^{\circ}\text{C}$ of an element in an experiment at a time t hours is

$$T(t) = A\sin(Bt) + C,$$

It is known that on the graph the point $(9, 8)$ is a minimum point and $(15, 14)$ is the following maximum point.

- a. (4%) Add the information to the following diagram:



- b. (5%) Find the value of C
- c. (5%) Find the value of A
- d. (10%) Find the value of B
- e. (6%) Find one instant in which the temperature decreases most rapidly.
- f. (6%) It is known that at $t = 8$ h the temperature is k . Find the next 2 instants at which the temperature is k .