Name:

# QUIZ 26 – MATH IB HL

1. (27%) Given the function $f(x) = -3\sin(\frac{2\pi}{3}x) - 4$. Fill the blanks:

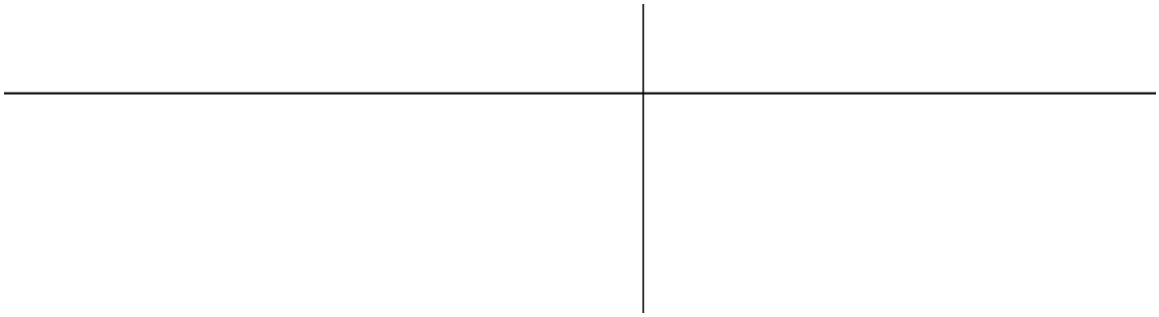
a. (2%) Amplitude = _____

b. (4%) Period = _____

c. (2%) Midline is: _____

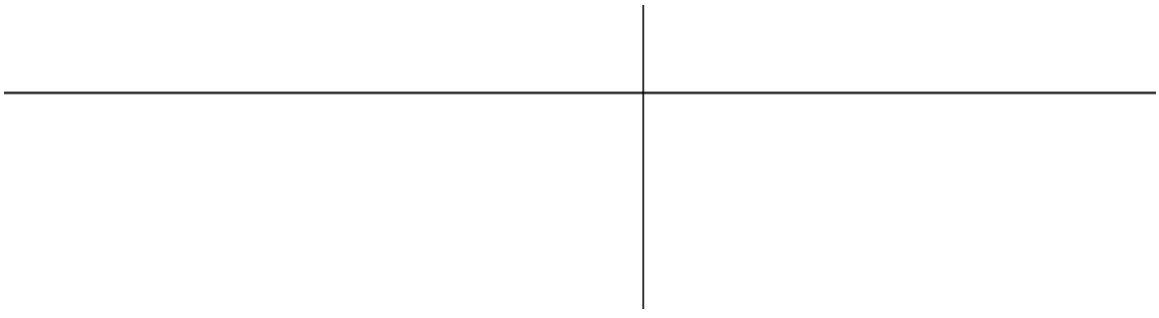
d. (4%) Range: _____

e. (6%) Sketch 1 period on each side of the y axis. Indicate on the graph the coordinates of y int, x int max and min.

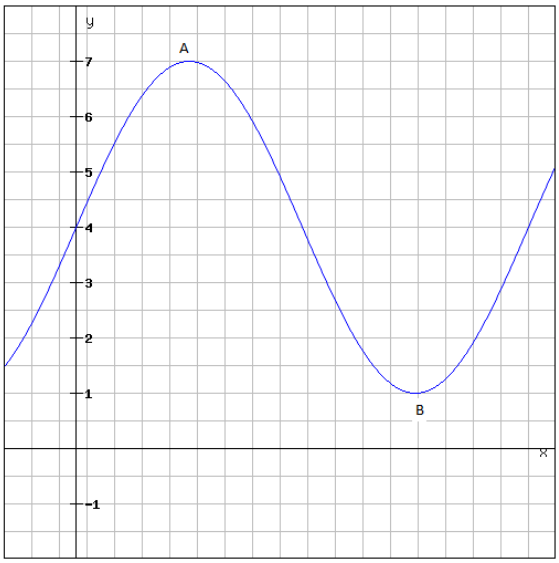


f. (4%) g(x) = f(x – 1) + 1 = _____

g. (5%) Sketch g(x) as the transformation of f(x) sketched on the graph above. Write down the coordinates of y int, x int max and min.



2. (21%) Given the function. Point A $(\frac{3\pi}{2},7)$, Point B $(\frac{9\pi}{2},1)$ Fill the blanks:




a. (2%) Amplitude = _____

b. (4%) Period = _____

c. (2%) Midline is: _____

d. (3%) Range: _____

Fill the blanks:

e. (5%) f(x) = ___Cos ( _____ ) _____

f. (5%) f(x) = ___Sin( _____ ) _____

3. (10%) Given the function $f(x)=8\cos(\frac{7\pi}{22}(x-3.4))-7$. Determine the value of k for which the equation f(x) = k has solutions.

4. (22%) A formula for the temperature T in C$^o$ of en element in an experiment at a time *t* hours is

$$T(t) = ASin(Bt) + C, \qquad 0 \le t \le 16$$

It is known that on the graph the point (6, 2) is a minimum point and the point (10, 8) is a maximum point.

a. (3%) Find the value of C

b. (3%) Find the value of A

c. (5%) Find the value of B

d. (5%) When does the temperature decrease most rapidly?

e. (6%) It is known that at t = 0.5 h the temperature is k. Find the next 2 instants at which the temperature is k.

5. (20%) Given the function $f(x) = 2\tan(\frac{\pi}{2}x)$.

a. (8%) Find its domain

b. (6%) Find its x intercepts

c. (6%) Write down the equation of 1 vertical asymptote of the function

3f(x + 1)