Name:

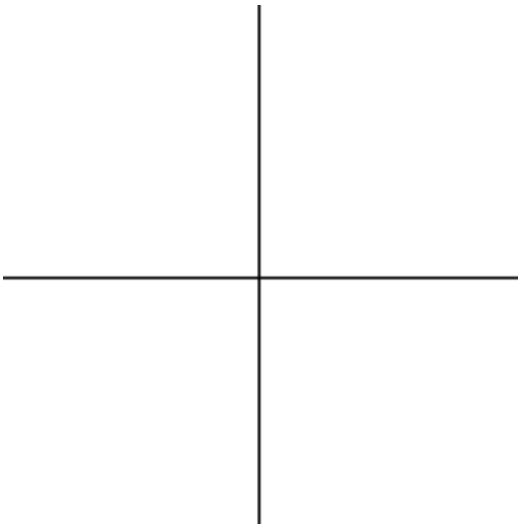
QUIZ 16 – MATH IB HL

1. (30 marks) Given the function $f(x) = |-3x - 6|$

   a. (2 marks) The y intercept is/are: _____

   b. (2 marks) The x intercept is/are: _____

   c. (5 marks) Write it in the hybrid (piecewise) form:



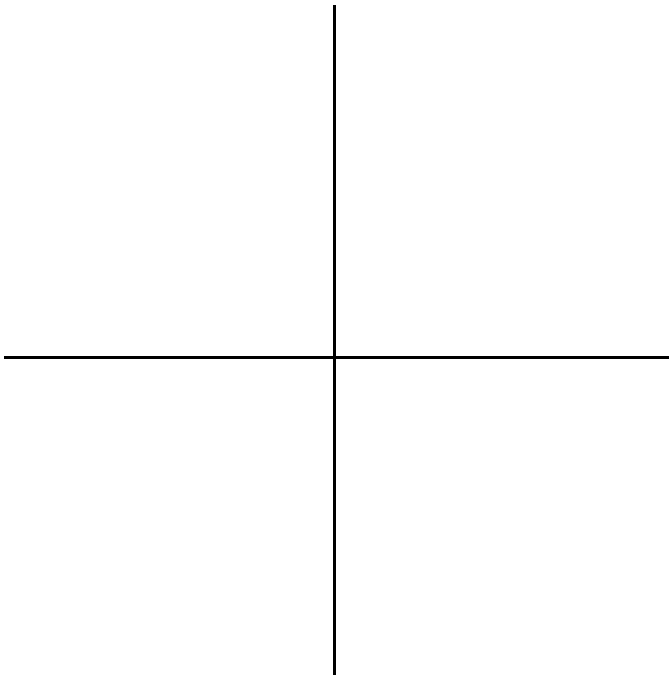
   d. (2 marks) The min/max is: _____

   e. (3 marks) Sketch the function, write the coordinates of x and y intercept on the graph.

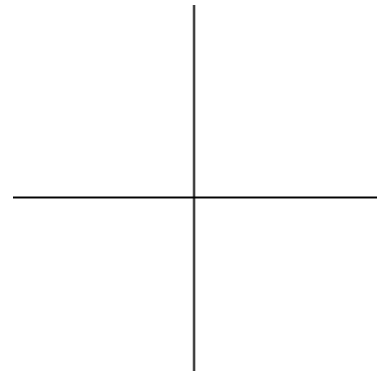
   f. (2 marks) The function decreases for _____.

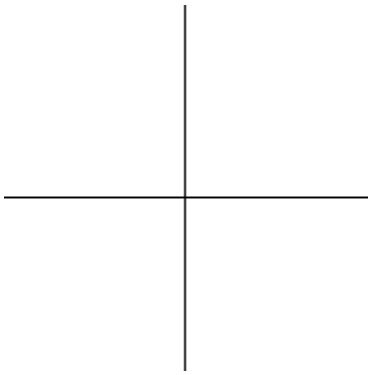
   g. (8 marks) On the following graph sketch the function $f(x) = |-3x - 6| + 8$, **find and indicate on the graph all its intercepts, max, min and**

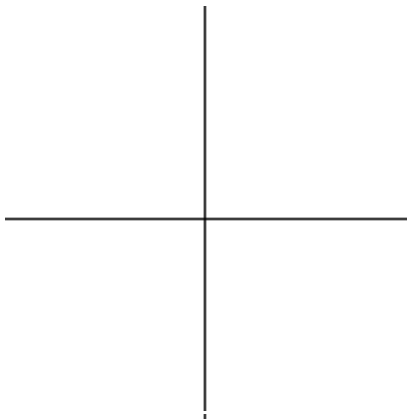
   h. (6 marks) Write it in the hybrid (piecewise) form:

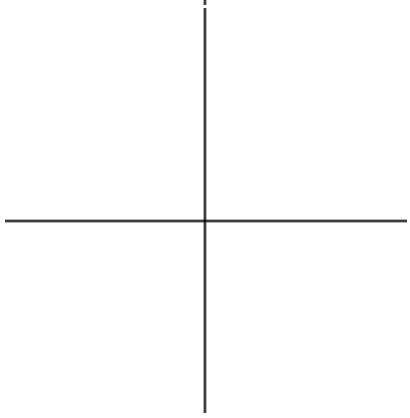


2. (30 marks) Given the function $f(x) = -|x| + 6$. Write the sequence of transformations needed to transform $g(x) = 4|x - 1|$ into $f(x)$. Write the expression and sketch the function obtained after **<u>each</u>** transformation, indicate on the graph the coordinates of the max/min and y intercept.



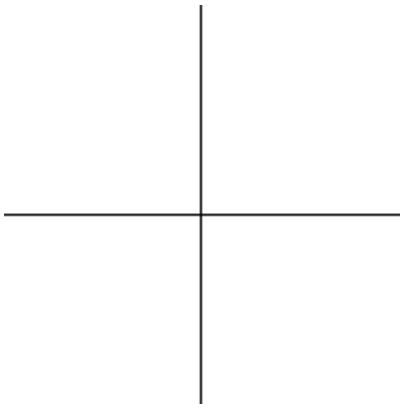






3. (30 marks) Given the function $f(x) = |x| - |2x + 6|$

   a. (15 marks) Write it in the hybrid (piecewise) form:



   b. (15 marks) Sketch the function, write the coordinates of x and y intercept, max, min on the graph.

4. (10 marks) Given the function $f(x) = x - 3|x + 1|$ Write it in the hybrid (piecewise) form:

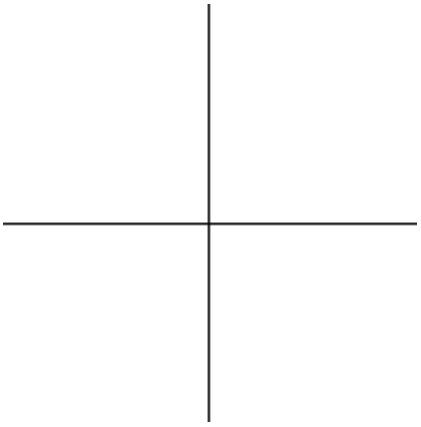
BONUS

5. (10 marks) Given the function $f(x) = |-2x^2 - 8x|$

   a. (1 marks) The y intercept is/are: _____

   b. (1 marks) The x intercept is/are: _____

   c. (3 marks) Write it in the hybrid (piecewise) form:



   d. (5 marks) On a different graph sketch the function $H(x) = -|-2x^2 - 8x| + 3$, indicate on the graph **the coordinates of intercepts, maximums and minimums**.