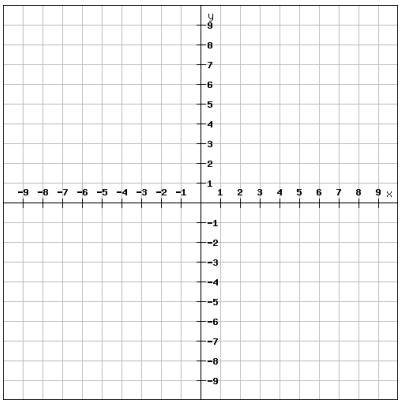
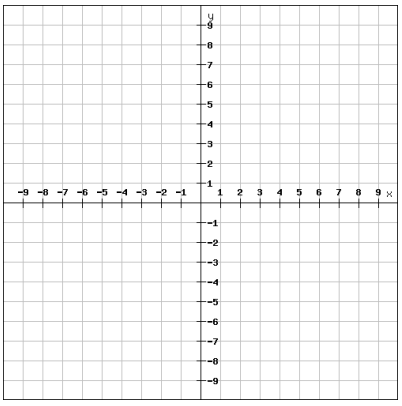
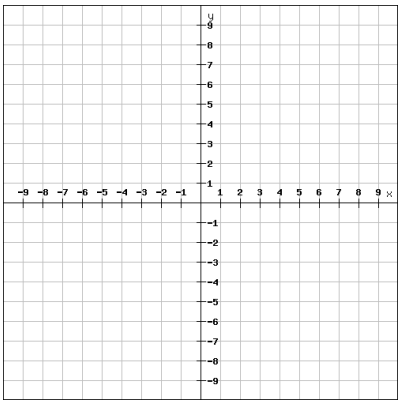
Name:

QUIZ 21 – MATH IB HL

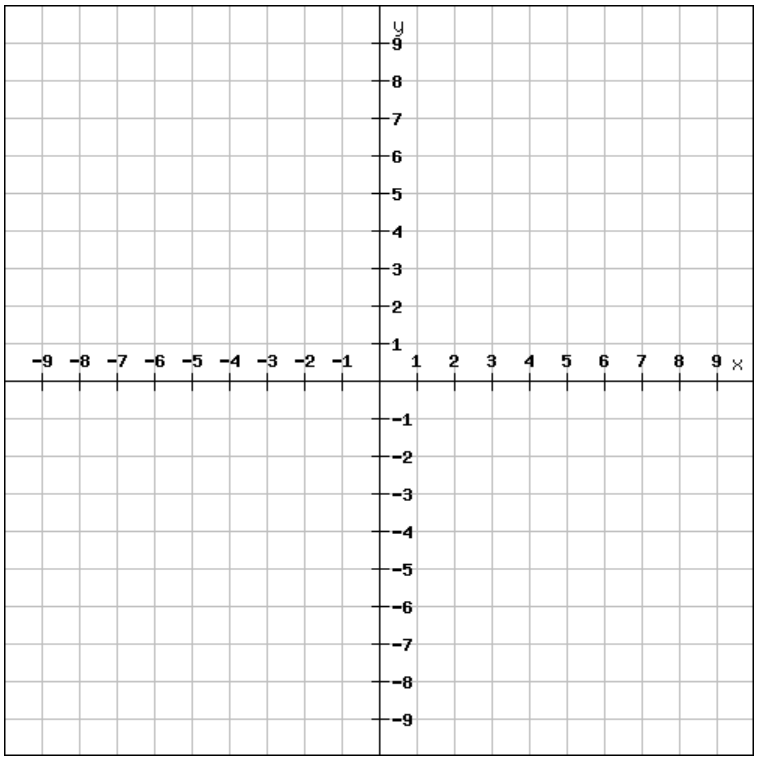
1. (63%) Given the function $f(x) = \begin{cases} -6 \cdot 2^x + 8 & x \le -1 \\ \sqrt{x+26} & -1 < x < 10 \\ \dfrac{-2}{x-9} - 1 & x \ge 10 \end{cases}$

   a. (24%) Sketch each on of the parts on the following graphs. **Write down all the coordinates of x and y intercepts and all the equations of all the asymptotes. Illustrate the asymptotes on the graphs.**

   b. (8%) f(9) =

   c. (21%) Sketch the piecewise function, **Write down all the coordinates of x and y intercepts and all the equations of all the asymptotes. Illustrate the asymptotes on the graphs.**

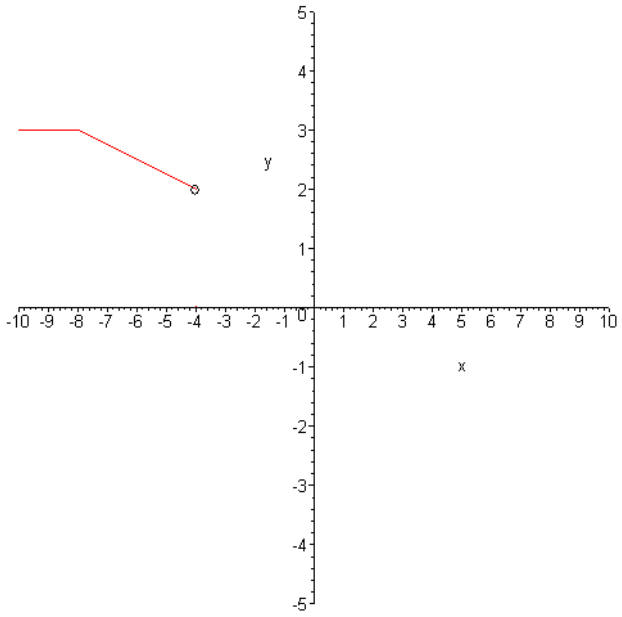


   d. (10%) Range:

2. (37%) Given the piecewise function:

$$f(x)=\begin{cases} c & x \le -8 \\ mx+b & -8 < x < -4 \\ \log_3(-1-x) & x \ge -4 \end{cases}$$

Part of its graph is given by:



a. (5%) c = _____

b. (12%) find m and b

c. (10%) Complete the sketch of the piecewise function, **Write down all the coordinates of x and y intercepts and all the equations of all the asymptotes. Illustrate the asymptotes on the graphs.**

d. (10%) Discuss the continuity of the function.