Name:

QUIZ – MATH GRADE 11 IB SL

1. (5%) Vertical asymptotes exist if _____

   _____

2. (5%) Horizontal asymptotes exist if _____

   _____

3. (20%) Given the function: $f(x) = \frac{-12}{x}$ $\quad -2 \le x \le 10$

   a. (5%) Write down the domain of the function: ____

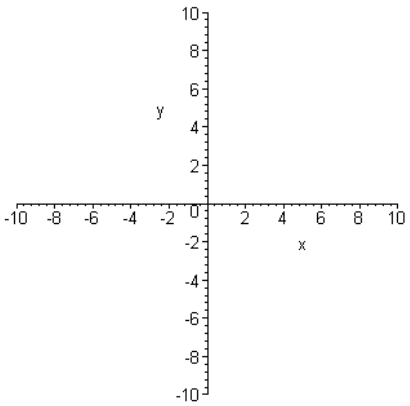
   b. (5%) Graph the function.

   c. (5%) Write down the equation of the

      Vertical asymptote: _____

   d. (5%) Write down the equation of the

      Horizontal asymptote: _____



4. (30%) Given the function: $C(n) = an^{-2}$ $\quad 0 < n \le 100$ representing the cost per product for making n products.

   a. (10%) Given that the cost per product of making 2 products is 1 euro/product, find the value of *a*.

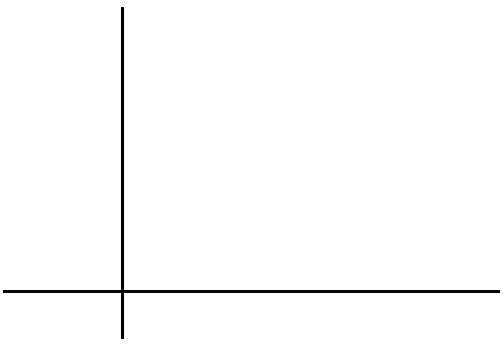
   b. (10%) Find the cost per product of making 3 products

   c. (5%) Graph the function.

   d. (5%) In general as more products are

      produced, the cost per product _____

   e. (5%) How is that seen on the graph?



5. (40%) Given the function: $V(n) = an^3$ $\quad 0 \le n < \infty$ representing the Volume in liters of a certain gas as a function of the number of molecules it contains.

   a. (10%) Given that when the number of molecules is $8 \cdot 10^{26}$ the volume of the gas is $2 \cdot 10^3$ liters, find the value of *a*.

   b. (9%) Find the number of molecules in a gas whose volume is $\frac{1}{2}$ liter, give your answer in scientific notation.

   c. (9%) Find the volume of a gas whose number of molecules is $4 \cdot 10^{20}$, give your answer in scientific notation.

   d. (4%) Graph the function.

   e. (4%) In general as more molecules the gas contains the _____

   f. (4%) How is that seen on the graph?