

4. [10 points] Consider the function f defined by $f(x) = \frac{(x + 1.8)(x + 2.1)}{(2x + 1.8)(3x - 6.9)(x + 2.1)}$.

You do not have to show your work/reasoning on this problem. However, any work that you do show may be considered for partial credit.

- a. [3 points] What is the domain of f ?

Answer: _____

- b. [2 points] Find the equations of all vertical asymptotes of the graph of $y = f(x)$.
If there are none, write NONE.

Answer: _____

- c. [2 points] Let $g(x) = e^{-0.4x}$.

Find the equations of all horizontal asymptotes of the graph of $y = \frac{g(x)}{f(x)}$.

If there are none, write NONE.

Answer: _____

- d. [3 points] Find a formula for a rational function $h(x)$ such that $\lim_{x \rightarrow \infty} \frac{f(x)}{h(x)} = 8$.

Answer: $h(x) =$ _____