

Math 131 - Quiz 11

November 30, 2023

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) State the horizontal asymptote for the graph of each rational function. You don't need to show work.

(a) $R(x) = \frac{3 - 8x^2 - 9x^4}{7x^4 + x^3 + 4x^2}$

(b) $f(x) = \frac{x^3 - 2x}{x^3 - 5x}$

(c) $h(x) = \frac{1000x^5 + 100}{x^6 + 1}$

2. (2 points) Explain very briefly how you know that the graph of $Q(x) = \frac{x^3 + x}{256x^2 + 512x + 1024}$ has no horizontal asymptote.

3. (5 points) Use any analytical method to compute each limit.

(a) $\lim_{x \rightarrow \infty} \frac{e^x}{x^2}$

(b) $\lim_{x \rightarrow 0^+} \frac{\ln x}{1/x}$