Name: _____

Quiz 4

MATH 200
September 2, 2025

1. Give an example of a function f for which $\lim_{x \to \infty} f(x) = 2$, $\lim_{x \to 1^+} f(x) = \infty$ and $\lim_{x \to 1^-} f(x) = -\infty$.

   $f(x) =$

2. $\lim_{x \to \infty} \cos\left(\dfrac{\pi x^2 + 12x - 15}{x^2 - 1}\right) =$

3. $\lim_{x \to 2} \dfrac{1}{x^2 - 4x + 4} =$

4. State the asymptotes (both vertical and horizontal, if any) of the function $f(x) = \dfrac{x - 4}{x^2 - 3x - 4}$.

   Vertical Asymptote(s): _____

   Horizontal Asymptote(s): _____

Name: _____

Quiz 4

MATH 200
September 2, 2025

1. Give an example of a function f for which $\lim_{x \to \infty} f(x) = 1$, $\lim_{x \to 2^+} f(x) = \infty$ and $\lim_{x \to 2^-} f(x) = -\infty$.

   $f(x) =$

2. $\lim_{x \to 1^+} \dfrac{1}{x^2 - 3x + 2} =$

3. $\lim_{x \to \infty} \sin\left(\dfrac{\pi x^2 + 12x - 15}{2x^2 - 4x + 3}\right) =$

4. State the asymptotes (both vertical and horizontal, if any) of the function $f(x) = \dfrac{x - 1}{x^2 - 4x + 3}$.

   Vertical Asymptote(s): _____

   Horizontal Asymptote(s): _____