Calculus Quiz A (2.2-2.3) Name_____

Find a power function end behavior model.

1) $y = \dfrac{6x^2 + x - 1}{x^3 - 9x^2}$

A) $y = \dfrac{x}{6}$ B) $y = 6x$ C) $y = \dfrac{6}{x}$ D) $y = \dfrac{6x + 1}{x^2 - 9x}$

Find the limit, if it exists.

2) $\lim\limits_{x \to \infty} \dfrac{x^2 - 4x + 17}{x^3 + 9x^2 + 8}$

A) $\dfrac{17}{8}$ B) ∞ C) 1 D) 0

3) $\lim\limits_{x \to \infty} \dfrac{-12x^2 + 8x + 9}{-15x^2 + 2x + 8}$

A) $\dfrac{9}{8}$ B) $\dfrac{4}{5}$ C) ∞ D) 1

4) $\lim\limits_{x \to -\infty} \dfrac{4x^3 + 3x^2}{x - 6x^2}$

A) ∞ B) $-\dfrac{1}{2}$ C) $-\infty$ D) 4

Find the limit.

5) $\lim\limits_{x \to (-2)^-} \dfrac{1}{x + 2}$

A) $-\infty$ B) ∞ C) -1/2 D) 1/2

Find the limit of f(x) as (a) $x \to \infty$, (b) $x \to$, (c) $x \to 0^-$, and (d) $x \to 0^+$.

6) $f(x) = \begin{cases} \dfrac{3x - 4}{2x - 2}, & x \le 0 \\ \dfrac{1}{x^2}, & x > 0 \end{cases}$

Find all points where the function is discontinuous. Determine the type of discountinuity and prove by using limits and function values.

7)

$$f(x) = \begin{cases} 5, & x = 1, \\ \frac{1}{2}x^2 - 2, & x \neq 1; \end{cases}$$

Find a value for a so that the function f(x) is continuous.

8) $f(x) = \begin{cases} x^2 + x + a, & x < -4 \\ x^3, & x \geq -4 \end{cases}$

Determine the limit algebraically, if it exists.

9) $\lim_{x \to 2} \frac{x^2 + 3x - \text{™™}}{x^2 - \text{™}}$

10) $\lim_{x \to 0} \frac{\frac{1}{x + 10} - \frac{1}{10}}{x}$