Math 131 - Quiz 3

Name _____

February 2, 2022

Score _____

This quiz is available in Canvas. It is due February 7.

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1. (2 points) Evaluate the limit: $\lim_{x\to 0} \dfrac{3\sin 2x}{5x}$

   (a) 0/0

   (b) 6/5

   (c) 3/5

   (d) 2/5

2. (1 point) Suppose that $\lim_{x\to 5} \dfrac{f(x)}{x-5} = 8$. Which one of the following must be true?

   (a) $\lim_{x\to 5} f(x) = 0$

   (b) $\lim_{x\to 5} f(x) = 8$

   (c) $\lim_{x\to 5} f(x) = 40$

   (d) $\lim_{x\to 5} f(x)$ DNE

3. (2 points) Evaluate the limit: $\lim_{x\to 3} \dfrac{\dfrac{x-1}{x-2} - \dfrac{x+5}{x+1}}{x-3}$

   (a) $-1/2$

   (b) 0

   (c) 0/0

   (d) $-3/4$

4. (1 point) Evaluate the limit: $\lim_{x \to 2^-} \left(\frac{x^2 - 3}{x + 2} \right)$

   (a) $1/4$
   (b) $1/0$
   (c) 0
   (d) ∞

5. (2 points) Determine the limit $\lim_{w \to -3^+} f(w)$, where $f(w) = \begin{cases} 3w^2 - w, & w \leq -3 \\ 5w + 2, & w > -3 \end{cases}$

   (a) 30
   (b) -13
   (c) 17
   (d) The limit does not exist.

6. (1 point) Evaluate the limit: $\lim_{x \to 7^-} \frac{x}{x - 7}$

   (a) $-1/2$
   (b) 0
   (c) $+\infty$
   (d) $-\infty$

7. (1 point) The graph of $f(x) = \frac{5x(x-2)(x+1)}{(x-2)(3x+2)(x-7)}$ has some vertical asymptotes. Which of the following is a vertical asymptote of the graph?

   (a) $x = 0$
   (b) $x = 2$
   (c) $x = -7$
   (d) $x = -2/3$