

Math 131 - Quiz 3

February 3, 2022

Name _____

Score _____

This quiz is available in Canvas. It is due February 10.

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

- (a) 0/0
- (b) 6/5
- (c) 3/5
- (d) 2/5

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

- (a) $\lim_{x \rightarrow 5} f(x) = 0$
- (b) $\lim_{x \rightarrow 5} f(x) = 8$
- (c) $\lim_{x \rightarrow 5} f(x) = 40$
- (d) $\lim_{x \rightarrow 5} f(x)$ DNE

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

- (a) $-1/2$
- (b) 0
- (c) 0/0
- (d) $-3/4$

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

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

5. (2 points) Determine the limit $\lim_{w \rightarrow -3^+} f(w)$, 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: $\lim_{x \rightarrow 7^-} \frac{x}{x - 7}$

- (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) $x = -2/3$