

Math 131 - Quiz 1

This quiz is available in Canvas. Each problem is worth one (1) point.

1. True or false: A limit tells us the value of a function at a particular point.

- (a) True
 (b) False

2. Use a table of values to estimate the limit: $\lim_{x \rightarrow 0} \frac{\tan 3x}{5x}$

- (a) 0.600180
 (b) 0.618672
 (c) 0.600000
 (d) The limit does not exist.

X	0.1	0.01	0.001	-0.1	-0.01	-0.001
$\frac{\tan 3x}{5x}$	0.6187	0.60018	0.6000018	0.6187	0.60018	0.6000018

3. Use a table to estimate $\lim_{x \rightarrow 2} f(x)$, where $f(x) = \begin{cases} 6x + \sin(\pi x), & x < 2 \\ 5x + 2, & x > 2 \end{cases}$

- (a) The limit does not exist.
 (b) 12
 (c) 2
 (d) -12

X	1.9	1.99	1.999	2.1	2.01	2.001
f(x)	11.091	11.9086	11.9909	12.5	12.05	12.005

4. Use a graph or table of values to estimate the limit: $\lim_{x \rightarrow -3} \frac{x^2 + 8x + 15}{x + 3}$

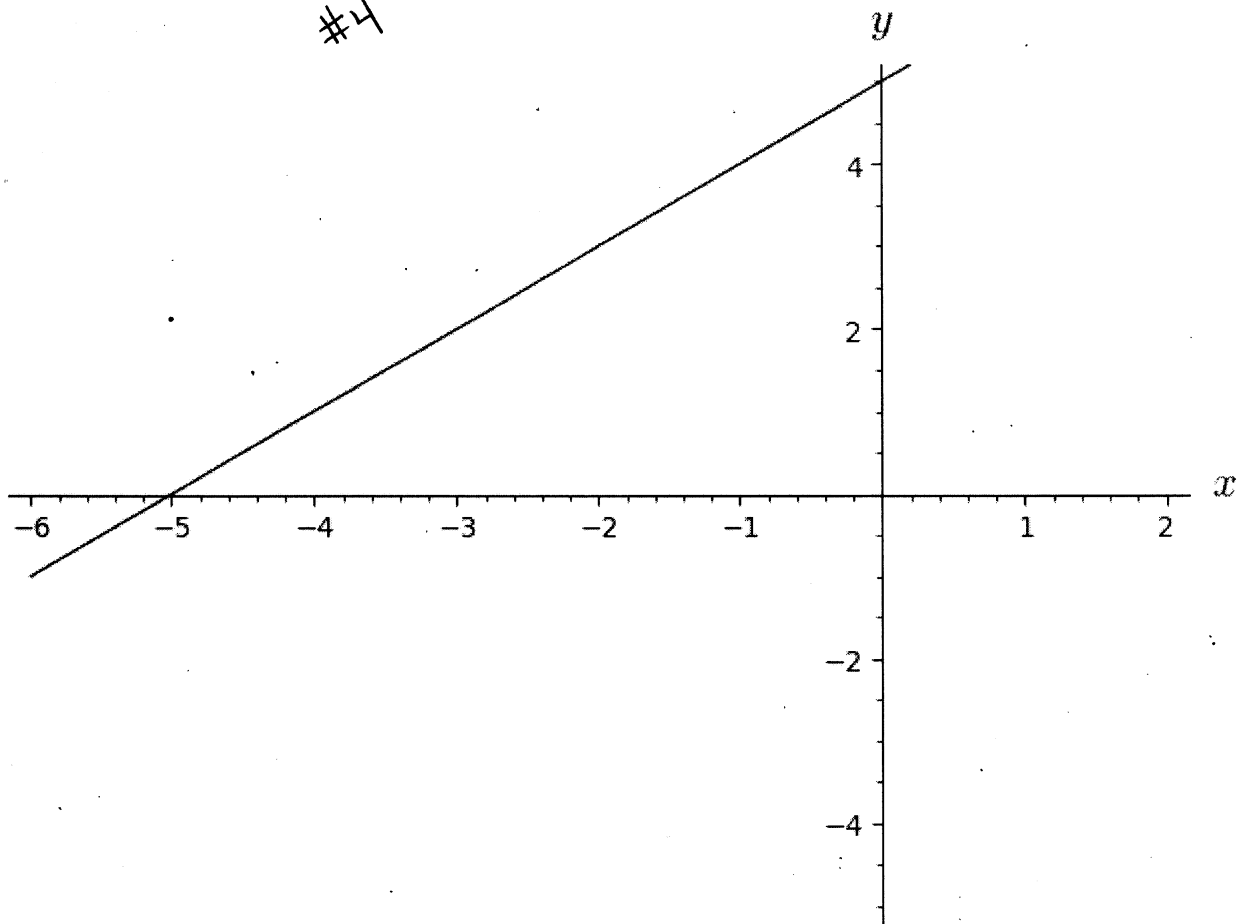
- (a) The limit does not exist.
 (b) 3
 (c) -17
 (d) 2

GRAPH IS ATTACHED.

5. Suppose you are asked to use a table of values to estimate the limit of $f(x)$ at $x = 5$. Which x -value would not be useful in your table?

- (a) $x = 5$ ← WE DON'T CARE WHAT HAPPENS AT $x = 5$.
 (b) $x = 4.99$
 (c) $x = 5.0001$
 (d) All of these would be useful.

#4



6. True or false: If $f(1) = 37$, then $\lim_{x \rightarrow 1} f(x) = 37$.

(a) True

(b) False

7. True or false: If $\lim_{x \rightarrow 1} f(x) = 37$, then $f(1) = 37$.

(a) True

(b) False

8. Explain why this limit fails to exist: $\lim_{x \rightarrow -2} \sqrt{4 - x^2}$

(a) The limit from the left does not equal the limit from the right.

(b) The function values grow without bound as the limit point is approached.

(c) The function values oscillate as the limit point is approached.

(d) The function is not defined on an open interval containing the limit point.

9. Explain why this limit fails to exist: $\lim_{x \rightarrow 5} \frac{x - 5}{|x - 5|}$

(a) The limit from the left does not equal the limit from the right.

(b) The function values grow without bound as the limit point is approached.

(c) The function values oscillate as the limit point is approached.

(d) The function is not defined on an open interval containing the limit point.

10. Explain why this limit fails to exist: $\lim_{x \rightarrow 5} \frac{x - 10}{|x - 5|}$

(a) The limit from the left does not equal the limit from the right.

(b) The function values grow without bound as the limit point is approached.

(c) The function values oscillate as the limit point is approached.

(d) The function is not defined on an open interval containing the limit point.