

Math 131 - Quiz 2

January 23, 2023

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (4 points) Use a table of values to show that the limit does not exist. Your table must show function values at four or more points.

x	$ x /(x^2+4x)$
0.1	0.243902
0.01	0.249377
0.001	0.249938
-0.1	-0.256410
-0.01	-0.250627
-0.001	-0.250063

} Approaching 0.25

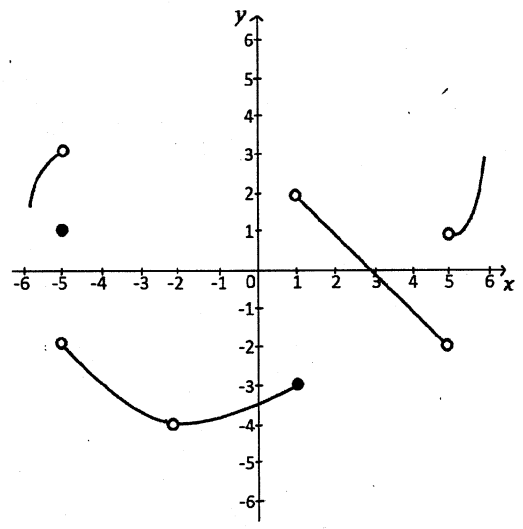
} Approaching -0.25

$$\lim_{x \rightarrow 0} \frac{|x|}{x^2 + 4x}$$

DOES NOT EXIST --

IT LOOKS LIKE THE LIMIT FROM THE RIGHT DOES NOT MATCH THE LIMIT FROM THE LEFT.

2. (6 points) The graph of $y = f(x)$ is shown below. Use the graph to estimate each limit or explain why the limit does not exist.



(a) $\lim_{x \rightarrow -6} f(x)$ Does Not Exist -- $f(x)$ IS NOT DEFINED TO THE LEFT OF $x = -6$.

FAILURE #4

(b) $\lim_{x \rightarrow 1} f(x)$ Does Not Exist --- $\left. \begin{matrix} \text{LIMIT FROM RIGHT} = 2 \\ \text{LIMIT FROM LEFT} = -3 \end{matrix} \right\}$ NOT EQUAL.

FAILURE #1

(c) $\lim_{x \rightarrow 3} f(x) = 0$