Calculus Homework

Shaurya Singh

July 6, 2021

1 Make a chart for the following function

$$lim\ \frac{x-4}{x^2-3x-4},\ x \to 4 \tag{1}$$

x	3.9	3.99	3.999
f(x)	2.1	2.01	2.001

2 Answer the following questions based on the following function

$$lim\ f(x),\ x \to 1 \tag{2}$$

$$f(x) = \begin{cases} x^2+3,\ x \neq 1 \\ 2,\ x = 1 \end{cases} \tag{3}$$

1. Does the limit exist? The limit exists. Since the second equation only applies when $x = 1$, a reasonable estimate for the limit of $f(x)$ is 4
2. Does the point exist? The point exists. Since the first equation doesn't apply when x is 1 (and the second does), the point exists as

$$(x, y) = (1, 2) \tag{4}$$