



This is a continuous graph

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ENG 281 Assignment

1) Given a function to be as $f(x) = x$
find $\lim_{x \rightarrow 0} f(x)$.

$x \rightarrow 0$

Answer

$\lim_{x \rightarrow 0} x$

$x \rightarrow 0$

The limit does not exist.

2) $f(x) = 5x - 21 = 9$
 $x \rightarrow 6$

$\delta = 0.1$ $a = 6$ $\text{step} = 0.01$

a	a - δ	f(x)	a	a + δ	f(x)
6	5.90	8.50	6	6.10	9.50
	5.91	8.55		6.09	9.45
	5.92	8.60		6.08	9.40
	5.93	8.65		6.07	9.35
	5.94	8.70		6.06	9.30
	5.95	8.75		6.05	9.25
	5.96	8.80		6.04	9.20
	5.97	8.85		6.03	9.15
	5.98	8.90		6.02	9.10
	5.99	8.95		6.01	9.05
	6.00	9.00		6.00	9.00

$\therefore \lim_{x \rightarrow 6} 5x - 21 = 9$
 $x \rightarrow 6$

$$3) \lim_{x \rightarrow 3^+} \frac{3-x}{|3-x|}$$

because it is from right hand,

let x be $(3+\delta)$

$$\frac{3-(3+\delta)}{|3-(3+\delta)|}$$

$$= \frac{3-3-\delta}{|3-3-\delta|}$$

$$= \frac{-\delta}{|-\delta|}$$

$$= \frac{-\delta}{\delta} = -1$$

$$= -1$$

$$4) \lim_{x \rightarrow 3} \frac{x-3}{|x-3|}$$

$$x \rightarrow 3 |x-3|$$

from right hand

$$\lim_{x \rightarrow 3^+} \frac{x-3}{|x-3|}$$

$$x \rightarrow 3^+ |x-3|$$

let x be $(3+\delta)$

$$\frac{3+\delta-3}{|3+\delta-3|}$$

$$= \frac{\delta}{|\delta|} = 1$$

$$= 1$$

$$\delta$$

from left hand

$$\lim_{x \rightarrow 3^-} \frac{x-3}{|x-3|}$$

$$x \rightarrow 3^- |x-3|$$

let x be $(3-\delta)$

$$\frac{3-\delta-3}{|3-\delta-3|} = \frac{-\delta}{|-\delta|}$$

$$= \frac{-\delta}{\delta} = -1$$

$$= -1$$

$$\delta$$

The $\lim_{x \rightarrow 3} \frac{x-3}{|x-3|}$ does not exist

$$x \rightarrow 3 |x-3|$$

$$3) f(x) = \sqrt{x-4}$$

$$(4, 8)$$

x	$y=f(x)$
4	0.0
5	1.0
6	1.4
7	1.7
8	2