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Matric NO: 17/ENG006/022

Course: ENG 281

1) Given a function to be as  $f(x) = \pi$   
find  $\lim_{x \rightarrow 3} f(x)$

Soln

$$\lim_{x \rightarrow 3} \pi$$

The limit does not exist

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

$\delta = 0.1$ ,  $a = 6$ ,  $\text{Step} = 0.01$

$a$	$a - \delta$	$f(x)$
6	5.90	8.50
	5.91	8.55
	5.92	8.60
	5.93	8.65
	5.94	8.70
	5.95	8.75

$a$	$a + \delta$	$f(x)$
6	6.10	9.50
	6.09	9.45
	6.08	9.40
	6.07	9.35
	6.06	9.30
	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

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

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

because it is from right hand,

let  $x$  be  $(3+h)$

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

$$= \frac{3 - 3 - h}{|3 - 3 - h|} = \frac{-h}{|-h|} = \frac{-h}{h} = -1$$

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

from right hand

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

Let  $x$  be  $(3+\delta)$

$$\frac{3+\delta-3}{8}$$

$$\frac{|3+\delta-3|}{8}$$

$$= \frac{\delta}{8} = 1$$

From left hand

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

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

Let  $x$  be  $(3-\delta)$

$$\frac{3-\delta-3}{8} = \frac{-\delta}{8} = -1$$

$$\frac{|3-\delta-3|}{8}$$

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

5) ~~find~~  $f(x) = \sqrt{x-4}$

$x$	$y = f(x)$
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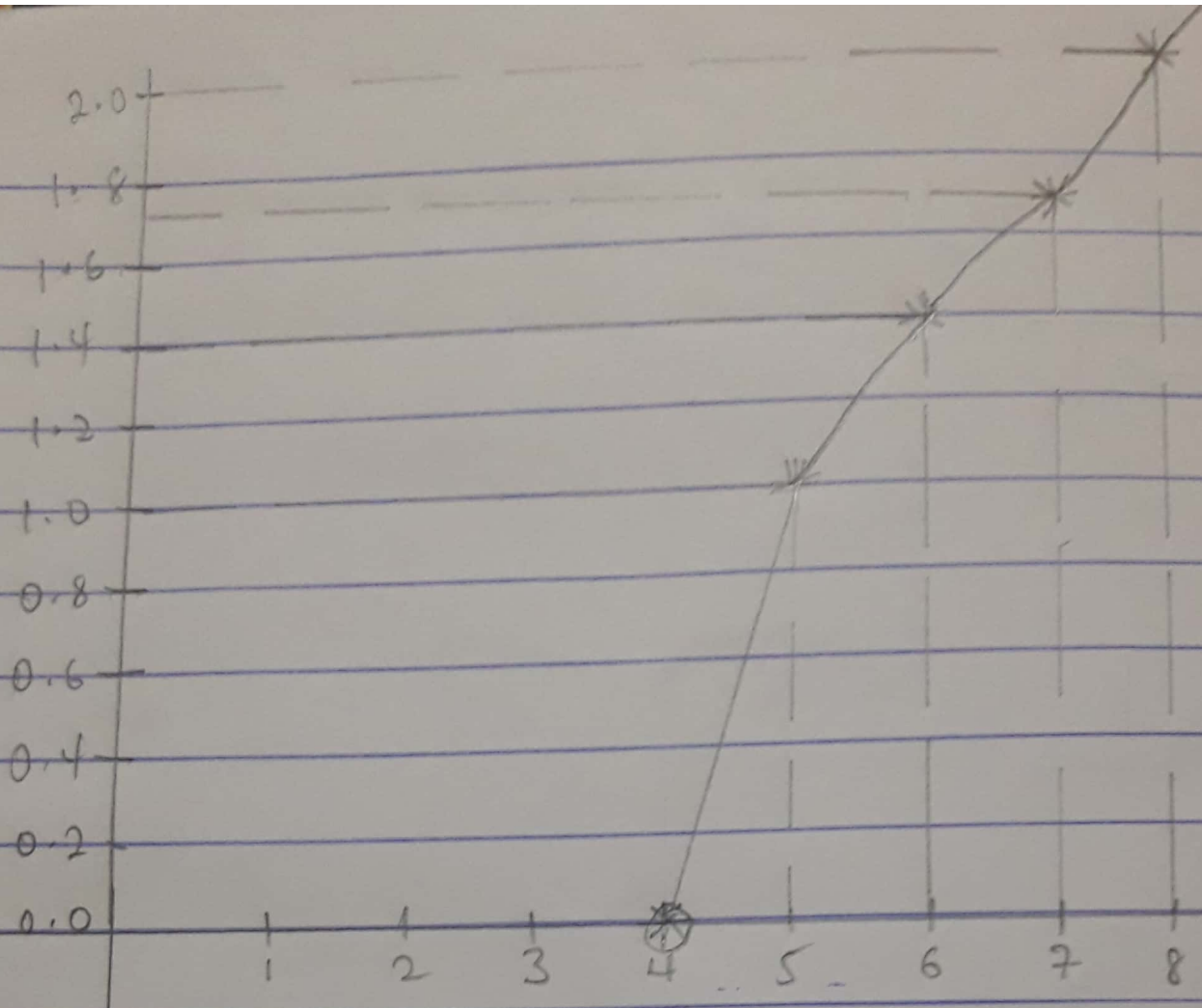
4	0.0
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5	1.0
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6	1.4
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7	1.7
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8	2
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This is a continuous graph.....