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CIVIL ENGINEERING
17/ENG03/1050 ENG 281

① Given a function to be in equation (1)

$f(x)$, ∴ find $\lim_{x \to 3} f(x)$

$\lim \bar{x}$

$x \to 3$

$\lim = \bar{x}$

$x \to 3$

② The model of a system has been developed by an engineer to be as given in equation (2)

$f(x) = 5x - 2$.

f(x)	x-5	x=6	x+5	f(x)
8.50	5.90		6.10	9.50
8.55	5.91		6.09	9.45
8.60	5.92		6.08	9.40
8.65	5.93		6.07	9.35
8.70	5.94		6.06	9.30
8.75	5.95		6.05	9.25
8.80	5.96		6.04	9.20
8.85	5.97		6.03	9.15
8.90	5.98		6.02	9.10
8.95	5.99		6.01	9.05
9.00	6.00	↓	6.00	9.00

Since the limits are defined both on the L.H.S and R.H.S can be said the limit is real and thus exists

3) Find the limit of the model question given below

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

$$\lim_{x \to 3} \frac{3-x}{|3-x|} = \frac{3-(3+x)}{|3-(3+x)|} = \frac{-x}{x} = -1$$

4) Evaluate the limit of the model given as has

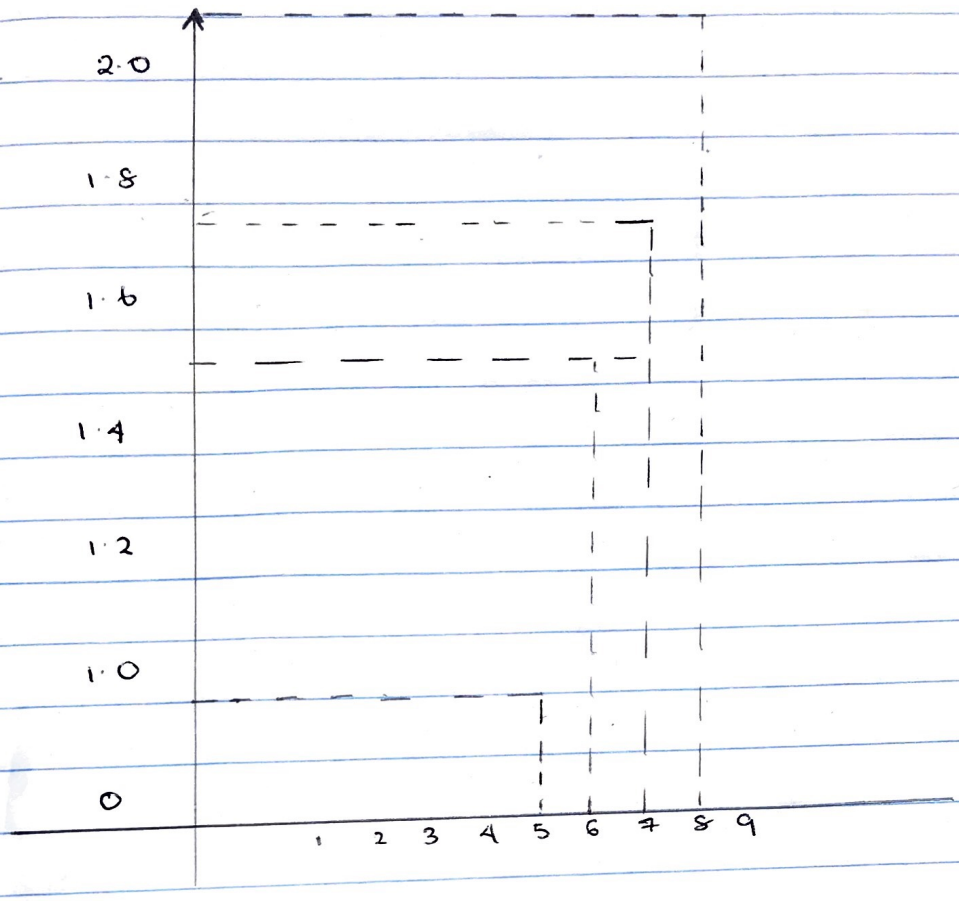
$$\lim_{x \to 3} \frac{x-3}{|x-3|}$$

$$\lim_{x \to 3} \frac{x-3}{|x-3|} = \frac{3-3}{|3-3|} = \frac{0}{0}$$ the limit does NOT exist

5)

x	$f(x) = \sqrt{x-4}$
4	0
5	1.0
6	1.4
7	1.7
8	2.0

The graph shows the $f(x) = \sqrt{x-4}$ of interest $(4, 8)$ is continuous because there was no point when the function was undefined and the graph is a straight line graph


2·0
1·8
1·6
1·4
1·2
1·0
0
1
2
3
4
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9