

(2)

Find the limit of the model equation given in Eqn (3)

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

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

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

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

4) Evaluate the limit of the model given in Equation

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

solution

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

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

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

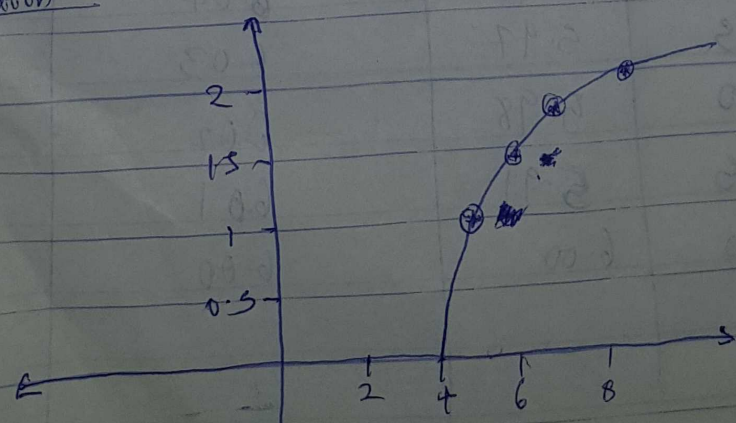
The limit exists

5 Show that the function given in Equation (5)

$f(x) = \sqrt{x-4}$ is continuous on the interval $[4, 8]$

solution

4	0
5	1
6	1.4
7	1.7
8	2



(1)

1) Given a function to be as in Equation (1)

$$f(x) = \pi$$

$$\text{find } \lim_{x \rightarrow 3} f(x)$$

Solution

$$\lim_{x \rightarrow 3} f(x)$$

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

2) The model of a system has been developed by an Engineer to be given in Equation (2)

$$f(x) = 6x - 21$$

Given that $\delta = 0.1$ and using a step of 0.01, demonstrate, in tabular form, that the limit of the model as $x \rightarrow 6$ is equal to 9.

Solution

$x - \delta$	$f(x)$	$x + \delta$	$f(x)$
5.50	5.90	6.10	9.5
5.55	5.91	6.09	9.45
5.60	5.92	6.08	9.40
5.65	5.93	6.07	9.35
5.70	5.94	6.06	9.30
5.75	5.95	6.05	9.25
5.80	5.96	6.04	9.20
5.85	5.97	6.03	9.15
5.90	5.98	6.02	9.10
5.95	5.99	6.01	9.05
6.00	6.00	6.00	9.00