

3 Find the limit of the model given as

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

Solve

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

$$= \lim_{\delta \rightarrow 0} \frac{3-(3+\delta)}{3-6+\delta} = \frac{\delta}{\delta} = 1$$

4 Evaluate the limit of the model given as $\lim_{x \rightarrow 3} \frac{x-3}{|x-3|}$ is given

Solve

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

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

$$= \frac{0}{0} = \text{Undefined}$$

the limit does not exist.

5 Show that the function is given in the evaluation below is continuous on the interval $(4, 3)$

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

Solve

x	$f(x) = \sqrt{x-4}$
4	0
5	1
6	1.4
7	1.7
8	2.0

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Chemical Engineering

Assignment

1 Given the function to be as in $P(x) = \pi$

Find $\lim P(x)$

Solu

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

2 The model of a system has been developed by an engineer to be as given in the Equation.

$$P(x) = 5x - 21$$

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

Solu

\lim	a. δ	b	$a + \delta$	\lim
8.5	5.90		6.1	9.5
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 right hand limit and left hand limit are equal to 9, therefore

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