

① Given a function to be as an equation)

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

$$\text{Soln: } \lim_{x \rightarrow \pi} x$$

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

② The model of a system has been developed by an engineer to be as given in eqn ② $f(x) = 5x - 21$

Given that 0.01 and using a strip of 0.01 demonstrate in tables form that $\lim_{x \rightarrow 6}$ of the model as $x \rightarrow 6$ is equal to 9

$f(x)$	δ^-	δ^+	$f(x)$
8.50	5.9	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	5.94	6.05	9.25
8.80	5.95	6.04	9.20
8.85	5.96	6.03	9.15
8.90	5.97	6.02	9.10
8.95	5.98	6.01	9.05
9.00	5.99	6.00	9.00
$x = 5.9$	x		

Since the R.H.S and L.H.S

are equal to 9 therefore

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

③

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

④

$$\lim_{x \rightarrow 3} \frac{x-3}{|x-3|} = \frac{3-3}{|3-3|} = \frac{0}{0} = \text{Undefined}$$

⑤ Show that the function given in the eqn below is continuous on the interval $(8, 8)$ $f(x) = \sqrt{x-4}$

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

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