

NWANIKWO GODFREY EBURIA
 17/ENG02/054
 COMPUTER ENGINEERING

1. $f(x) = \pi$, find $\lim_{x \rightarrow 2} f(x)$
 DC $\rightarrow 2$

$\lim_{x \rightarrow 2^-} f(x) = \pi$
 $x \rightarrow 2^-$

$\lim_{x \rightarrow 2^+} f(x) = \pi$
 $x \rightarrow 2^+$

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

$f(x) = 5x - 21$

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

$f(x)$	$x - 0$	$x + 0$	$f(x)$
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 right hand limit and left hand limit are equal to a
 $\lim_{x \rightarrow 6} (5x - 21) = 9$

3. $\lim_{x \rightarrow 3} \frac{3 - x}{(3 - x)} = \lim_{x \rightarrow 0} \frac{3 - (3+x)}{(3 - (3+x))} = \frac{-x}{-x} = -1$

4. Evaluate the limit of the model given as

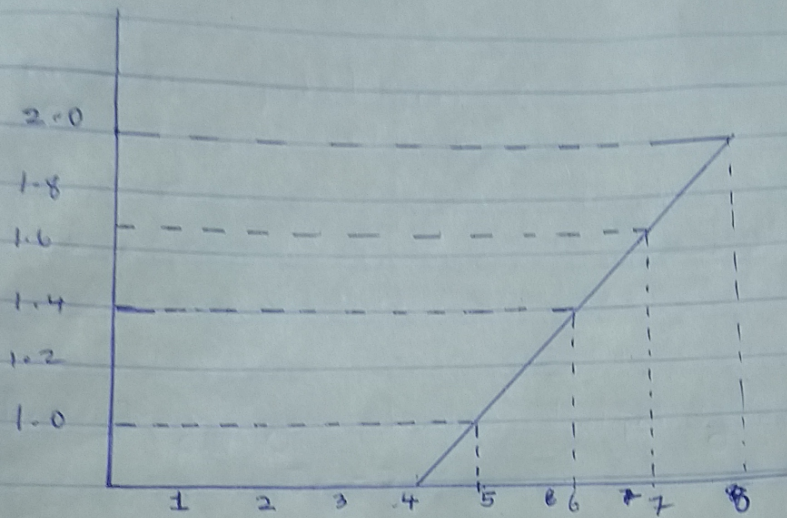
$$\lim_{x \rightarrow 3} \frac{x - 3}{(x - 3)}$$

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

$$\lim_{x \rightarrow 3} \frac{3 - 3}{3 - 3} = \frac{0}{0} \text{ The limit does not exist.}$$

5.

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



The graph shows that for $\sqrt{x-4}$, 7 intervals $(4, 8)$ is continuous because there was no point where one junction was undefined and the graph is a straight line graph.