

Name: OZOH Sachinika Francis

Mat No: 17/EENG04/066

Dept: Elect/Elect

1)  $F(x) = \pi$ , Find  $\lim_{x \rightarrow 2} F(x)$

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

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

2)  $\lim_{x \rightarrow 6} f(x)$

$$x \rightarrow 6$$

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

$$x \rightarrow 6$$

$F(x)$	$x - \Delta$	$x + \Delta$	$F(x)$
8.50	5.9	6.10	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

From the table  $\lim_{x \rightarrow 6} (5x - 21)$  all tends toward 9

4) Find the limit up to which equation given in question 3

$$\lim_{x \rightarrow 3} \frac{x-3}{x^2-9} = \lim_{x \rightarrow 3} \frac{x(1-\frac{3}{x})}{(x-3)(x+3)} = \lim_{x \rightarrow 3} \frac{1-\frac{3}{x}}{x+3} = \frac{1-\frac{3}{3}}{3+3} = \frac{0}{6} = 0$$

5) Evaluate the limit of the model equation.

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

$$\lim_{x \rightarrow 3} \frac{x-3}{x-3} = \lim_{x \rightarrow 3} \frac{3-\Delta-3}{3+\Delta-3} = \frac{\Delta}{\Delta} = 1$$

$$\lim_{x \rightarrow 3} \frac{x-3}{x-3} = \lim_{x \rightarrow 3} \frac{3-\Delta-3}{3+\Delta-3} = \frac{-\Delta}{\Delta} = -1$$

5) Show that the function given in question 10 is continuous on the interval  $(4, 8)$

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

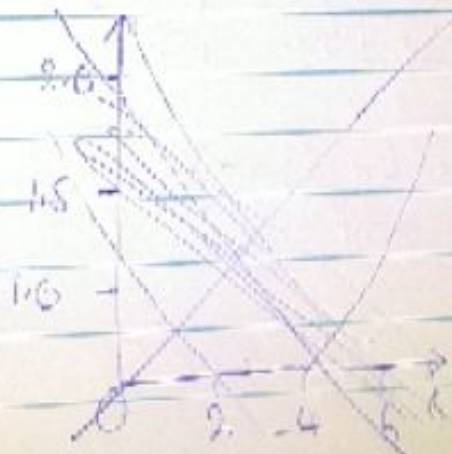
Sub  $x=4$

$$f(4) = \sqrt{4-4} = \sqrt{0} = 0$$

Sub  $x=8$

$$f(8) = \sqrt{8-4} = \sqrt{4} = 2$$

$x$	$f(x)$
4	0
6	1.5
8	2



It is continuous

