

Agiopi Joshua Ushigianle
 Petroleum engineering
 171EN24071003
 Eng 281

1) $f(x) = \sqrt{x}$

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

Ans: the lim does not exist

2) $f(x) = 50x - 21$

$\Delta = 0.1$ and step = 0.01 , $a = 6$

L.H.S		R.H.S	
$a - \delta$	$f(x)$	$a + \delta$	$f(x)$
5.9	8.5	6.1	9.5
5.91	8.55	6.09	9.45
5.92	8.6	6.08	9.4
5.93	8.65	6.07	9.35
5.94	8.7	6.06	9.3
5.95	8.75	6.05	9.25
5.96	8.8	6.04	9.2
5.97	8.85	6.03	9.15
5.98	8.9	6.02	9.1
5.99	8.95	6.01	9.05
b	a	6.00	9

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

for continuity $[4, 8] \Rightarrow 4, 5, 6, 7, 8$
if

$$x=4$$

$$x=5$$

$$x=6$$

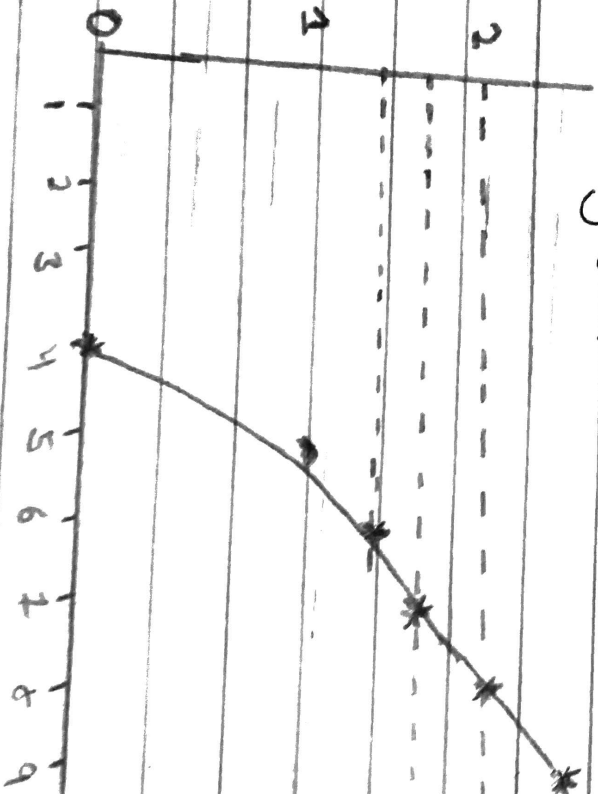
$$f(x) = \sqrt{4-4} = 0 \quad // \quad f(x) = \sqrt{5-4} = 1 \quad // \quad f(x) = \sqrt{6-4} = 1.4 \quad //$$

$$x=7$$

$$x=8$$

$$f(x) = \sqrt{7-4} = 1.7 \quad // \quad f(x) = \sqrt{8-4} = 2$$

continuity graph



Scale given to
1 unit x
X: 1cm to 1 unit x

c3) Find $\lim_{x \rightarrow 3^+} \frac{3-x}{|3-x|}$

R.H.S from $(x \rightarrow 3^+)$

$$x = 3 + 0.1$$

$$= 3.1$$

$$\lim_{x \rightarrow 3^+} \frac{3-3.1}{|3-3.1|} = \frac{-0.1}{|-0.1|} = \frac{-0.1}{0.1} = -1 //$$

4) $\lim_{x \rightarrow 3}$

L.H.S

$$x = 3 - 0.1$$

$$= 2.9$$

R.H.S

$$x = 3 + 0.1$$

$$= 3.1$$

• R.H.S

$$\lim_{x \rightarrow 3^+} \frac{3.1-3}{|3.1-3|} = \frac{0.1}{0.1} = 1$$

L.H.S

$$\lim_{x \rightarrow 3^-} \frac{2.9-3}{|2.9-3|} = \frac{-0.1}{|-0.1|} = -1 //$$

∴ The limit doesn't exist since LHS \neq RHS