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FE/ENG05/018

Mechatronics Engineering

ENG 281

1)  $f(x) = \pi$

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

$$x \rightarrow 3$$

$$f(x) = \frac{22}{7} \times x = \frac{22}{7} \times 3 = 9.42$$

2)  $f(x) = 5x - 2$

where  $x - a = a$

$$\delta = 0.1$$

$(a - \delta)$	$f(x)$	$(a + \delta)$	$f(x)$
5.91	8.55	6.09	9.45
5.92	8.60	6.08	9.40
5.93	8.65	6.07	9.35
5.94	8.70	6.06	9.30
5.95	8.75	6.05	9.25
5.96	8.80	6.04	9.20
5.97	8.85	6.03	9.15
5.98	8.90	6.02	9.10
5.99	8.95	6.01	9.05
6.00	9.00	6.00	9.00

$$3 \quad \lim_{x \rightarrow 3^+} \frac{3-x}{|3-x|}$$

$$= \frac{3-3+\delta}{|3-3+\delta|} = \frac{\delta}{\delta} = 1 //$$

$$4 \quad \lim_{x \rightarrow 3} \frac{3-x}{|3-x|}$$

$$= \frac{3-3}{(3-3)} = \text{Complex number}$$

$\therefore$  doesn't exist / no existing lim

$$5 \quad f(x) = \sqrt{x-4}$$

x	f(x)
4	0
5	1
6	1.4
7	1.7
8	2