UJILE UNYE DAVID

17/ENG02/077

COMPUTER ENGINEERING

1. $\lim_{x \to 3} f(x)$

$f(x) = \bar{\lambda}$

$\lim_{x \to 3} \bar{\lambda} = \bar{\lambda}$

2. $\lim_{x \to 6} f(x)$

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

x	fx
6.1	9.5
6.01	9.05
6.001	9.005
6.0001	9.0005
6.00001	9.00005
6.000001	9.000005
6.0000001	9.0000005

Hence $f(x) = 5x - 21$ tends towards 9 as is $x \to 6$

3. $\lim_{x \to 3} \cancel{\frac{3-x}{|3-x|}}$

$\lim \left(\frac{3-(3+x)}{3-(3+x)} \right) = \frac{0}{0}$

Limit is intermediate at right hand limit

4.

$\lim_{x \to} \frac{x-3}{|x-3|} \quad x \geq 0$

$\lim_{x \to 0^+} \left[\frac{(3+h)-3)}{(|3+h|-3)} \right] \quad x < 0 \quad \lim_{x \to 25} \left| \frac{3-h-3}{3-h-3} \right|$

$\frac{3-3}{3-3} = \frac{0}{0}$ = intermediate

Hence, limits doesn't exist from both left and right hand limit.

5. At point $x = 4$

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

$\lim_{x \to 4} \sqrt{x-4} = \sqrt{4-4} = \sqrt{0} = 0$

$\lim_{x \to 8} \sqrt{x-4} = \sqrt{8-4}$

$= \sqrt{4} = 2$

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

$\lim f(x) = f(4, 8)$

$n \to (4, 8)$

Hence, $f(x)$ is continous at $(4, 8)$