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CIVIL ENGINEERING
17/ENG03/010
2nd
ENG 281

1) Given a function to be (x)
$f(x) = x$ for $\lim_{x \to 3} f(x)$
$f(x) = 3$

2) The model of a system has been deployed by an engineer to be as given in equation (x)
$f(x) = 5x - 21$
Given that $a = -1$ and using a step of 0.01 demonstrate in tabular form that limit of the model as $x \to 6$ is equal to 9

$f(x)$	9·0	9+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	9·85
8·70	5·94	6·06	9·80
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 (RHL) and left hand limit are equal to 9. Therefore;
$$\lim_{x \to 6} (5x - 21) + 9$$

3) Find the limit of the model given as
$$\lim_{x \to 3} \frac{3 - x}{(3 - x)}$$

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

(4) Evaluate the limit of the model given as $\lim_{x \to 3} \frac{x-3}{(x-3)}$

Solu

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

$$= \frac{3-3}{(3-3)} = \frac{0}{0}$$

= Undefined Hence, limit doesn't exist

5 Show that the function given by the equation below is continuous on the interval $F(x) \sqrt{x-4}$

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