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Dept. of mechanical Engineering
Course: ~~Strength of materials~~ Mathematics
Assignment

(1) Given a function to be in the equation
 $\lim_{x \rightarrow 3} f(x) = \lim_{x \rightarrow 3} (x)$

(2) The model of a system has been developed
by an engineer to be given as
 $f(x) = 5x - 21$

Given that 0.01 and using a step
0.01, demonstrate a tabular form that the limit of the
model as $x \rightarrow 6$ is equal

$f(x)$	$x-0$	$x+0$	$f(x)$
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	9.35
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

Since the right hand limit and left hand limit are equal to 9

$$\lim_{x \rightarrow 6} (5x - 21) = 9$$

$$\textcircled{3} \lim_{x \rightarrow 3} \frac{3-x}{(3-x)} = \lim_{x \rightarrow 3} \frac{3-(3+x)}{(3-(3+x))} = \frac{-x}{x} = -1$$

\textcircled{4} Evaluate the limit of the model given as

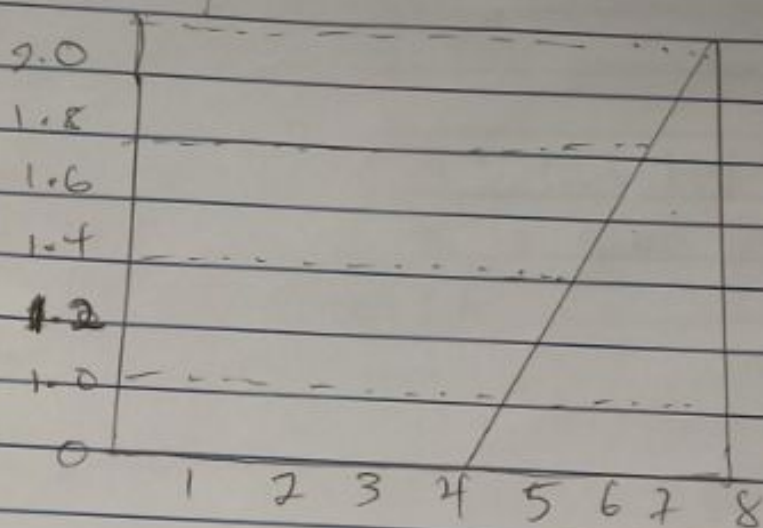
$$\lim_{x \rightarrow 3} \frac{x-3}{(x-3)}$$

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

$$\lim_{x \rightarrow 3} \frac{3-3}{|3-3|} = \frac{0}{0} \text{ the limit does not exist}$$

5

x	$f(x) \sqrt{x+1}$
4	0
5	1.0
6	1.4
7	1.7
8	2.0



The graph shows that $f(x) \sqrt{x+1}$ interval $(4, 8)$ is continuous because there was no point where the function was undefined and the graph is a straight line graph.