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Title: ENG 281 Assignment I

Date: 2/10/2019

1. f(x) = $\frac{sin ax}{bx}$,

Limx->0 f(x)= = $\frac{sin 0}{0}$ = = $\frac{0}{0}$

Using L’hopital’s rule:

Limx->0  $\frac{sin (ax)}{bx}$ = = $\frac{a cos (ax)}{b}$ = $\frac{a cos (0)}{b}$ = $\frac{a •1}{b}$ = $\frac{a}{b}$

1. f(x) = 5x – 21. δ = 0.1, $∆$δ = 0.01

|  |  |
| --- | --- |
| **x** | **f(x)** |
| 5.9 | 8.5 |
| 5.99 | 8.95 |
| 5.999 | 8.995 |
| 5.9999 | 8.9995 |
| 5.99999 | 8.99995 |

limx->6f(x):

Hence, limx->65x – 21 = 9

1. f(x) = (25 - x2)1/2

interval = [-5,5]

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **x** | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
| **f(x)** | 0.00 | 3.00 | 4.00 | 4.58 | 4.89 | 5 | 4.89 | 4.58 | 4.00 | 3.00 | 0.00 |

Therefore, the function is continuous about the interval, [-5,5]