9 | 6 | | 6 | 9 |

(3) $(25-x^2)^{1/2}$ at the intervals $(-5,5)$ show whether the function is continuous

$f(x) = (25-x)^{1/2}$

$(25-x^2)^{1/2} = \sqrt{25-x}$

From $-5$ to $5$

$\sqrt{25-(-5)^2} = 0$

$\sqrt{25-(-4)^2} = 3$

$\sqrt{25-(-3)^2} = 4$

$\sqrt{25-(-2)^2} = 4.58$

$\sqrt{25-(-1)^2} = 4.899$

$\sqrt{25-(0)^2} = 5$

$\sqrt{25-(1)^2} = 4.899$

$\sqrt{25-(2)^2} = 4.58$

$\sqrt{25-(3)^2} = 4$

$\sqrt{25-(4)^2} = 3$

$\sqrt{25-(5)^2} = 0$

$f(x) = \sqrt{25-x^2}$ is continuous for all values ranging $-5$ to $5$

$\therefore \lim_{x \to 0} \frac{\sin ax}{bx} = \frac{a}{b}$

(2) $f(x) = 5x - 21$ as $x \to 6$ Limit $= 9$

$\delta = 0.1$ and $\Delta\delta = 0.01$

| L-e | a-δ | a | a+d | L+e |
|---|---|---|---|---|
| 8.5 | 5.9 | 6 | 6.1 | 9.5 |
| 8.55 | 5.91 | | 6.09 | 9.45 |
| 8.6 | 5.92 | | 6.08 | 9.4 |
| 8.65 | 5.93 | | 6.07 | 9.35 |
| 8.7 | 5.94 | | 6.06 | 9.3 |
| 8.75 | 5.95 | | 6.05 | 9.25 |
| 8.8 | 5.96 | | 6.04 | 9.2 |
| 8.85 | 5.97 | | 6.03 | 9.15 |
| 8.9 | 5.98 | | 6.02 | 9.1 |
| 8.95 | 5.99 | | 6.01 | 9.05 |

| | |
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(1) $\lim_{x \to 0} \frac{\sin ax}{bx}$

$= \lim_{x \to 0} \sin ax \times \frac{1}{bx}$

multiply and divide by ax

$\lim x \to 0 \ \frac{\sin ax}{ax} \times \frac{ax}{bx}$

$= \frac{\sin ax}{ax} \times \frac{a}{b}$

$= \frac{a}{b} \times \lim_{x \to 0} \frac{\sin ax}{ax}$

using $\lim_{x \to 0} \sin x/x = 1$

$x = ax$

$= \frac{a}{b} \times 1 = \frac{a}{b}$

$\therefore \lim_{x \to 0} \sin ax/bx = a/b$

=