

1-

$$y = 2x^3 - 6x^2 - 7x + 11$$

$$y = 2(x^3 + 3x^2\Delta x + 3x\Delta x^2 + \Delta x^3) - 6(x^2 + 2x\Delta x + \Delta x^2) - 7x - 7\Delta x + 11$$

$$y = 2x^3 + 6x^2\Delta x + 6x\Delta x^2 + 2\Delta x^3 - 6x^2 - 12x\Delta x - 6\Delta x^2 - 7x - 7\Delta x + 11$$

$$y + \Delta y = 6x^3\Delta x + 6x^2\Delta x^2 + 2\Delta x^3 - 12x\Delta x - 6\Delta x^2 - 7\Delta x + 11$$

$$\frac{y + \Delta y}{\Delta x} = \frac{6x^3\Delta x}{\Delta x} + \frac{6x^2\Delta x^2}{\Delta x} + \frac{2\Delta x^3}{\Delta x} - \frac{12x\Delta x}{\Delta x} - \frac{6\Delta x^2}{\Delta x} - \frac{7\Delta x}{\Delta x} = \Delta x$$

$$\frac{\Delta y}{\Delta x} = 6x^2 + 6x\Delta x + 2\Delta x^2 - 12x - 6\Delta x - 7 \quad \lim_{\Delta x \rightarrow 0}$$

$$\frac{\Delta y}{\Delta x} = 6x^2 - 12x - 7$$

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$$y = \frac{11}{4x^3} + \frac{7}{8x^2}$$

$$y + \Delta y = \frac{11}{4(x+\Delta x)^3}$$

$$y + \Delta y = \frac{11}{4(x^3 + 3x^2\Delta x + 3x\Delta x^2 + \Delta x^3)}$$

$$y + y + \Delta y = \frac{11}{4x^3 + 12x^2\Delta x + 12x\Delta x^2 + 4\Delta x^3} = \frac{11}{4x^3}$$

$$\Delta y = \frac{\cancel{11x^3} - \cancel{11x^3} - 132x^2\Delta x - 132x\Delta x^2 - 44\Delta x^3}{(4x^3 + 12x^2\Delta x + 12x\Delta x^2 + 4\Delta x^3)(4x^3)}$$

$$\frac{\Delta y}{\Delta x} = \frac{-132x^2 - 132x\Delta x - 44\Delta x}{(4x^3 + 12x^2\Delta x + 12x\Delta x^2 + 4\Delta x^3)(4x^3)} = \Delta x$$

$$\frac{\Delta y}{\Delta x} = \frac{-132x^2 - 132x\Delta x - 44\Delta x}{(4x^3 + \cancel{12x^2\Delta x} + \cancel{12x\Delta x^2} + \cancel{4\Delta x^3})(4x^3)} \quad \text{Lim } \Delta x \rightarrow 0$$

$$\frac{\Delta y}{\Delta x} = \frac{-132x^2 - 44\Delta x}{(4x^3)^2}$$

$$y = \frac{11}{4x^3} + \frac{7}{3x^2}$$

$$y + 7y = 7$$

$$3(x+4x)^2$$

$$-y + y + 4y = 7$$

$$3x^2 + 6x + 34x^2$$

$$\Delta y = 3x^2 - 3x^2 - 12x + 21x^3$$

$$(3x^2 + 6x + 34x^2)(3x^2)$$

$$\Delta y = -12x + 21x^3$$

$$\Delta x = (3x^2 + 6x + 34x^2)(3x^2)$$

$$\Delta y = -12x - 21x^3$$

$$\Delta x = (3x^2 + 6x + 34x^2)(3x^2)$$

$$\Delta y = -12x$$

$$\Delta x = (3x^2)^2$$

$$\Delta y = -12x^2 - 44$$

$$\Delta x = (4x^3)^2$$

$$-12x$$

$$(3x^2)^2$$

$$y = 11 - 2x^2 - 6x^3$$

$$y = \begin{pmatrix} 11 \\ -11 \end{pmatrix} \begin{pmatrix} -2x^2 \\ -2x^2 \end{pmatrix} - 4x \cdot 4x - 24x^2 - \begin{pmatrix} 6x^3 \\ 6x^3 \end{pmatrix} - 18x^2 \cdot 4x - 18x \cdot 4x - 64x^3$$

$$y = \frac{4y}{4x} = \frac{-4x \cancel{4x} - 2x^2 - 18x^2 \cancel{4x} - 18x \cancel{4x} - 64x^3}{4x} = 4x$$

$$\frac{4y}{4x} = \frac{-4x - \cancel{24x} - 18x^2 - \cancel{18x^2} - 64x^3}{4x} \quad \lim_{4x \rightarrow 0}$$

$$\frac{4y}{4x} = -4x - 18x^2$$

A = Miguel Garcia

$$y = \frac{x}{(x^2 - 8x)} = \frac{x}{x(x-8)} \cdot \frac{1}{x+8}$$

$$y = \frac{1}{(x+4x)8} \cdot \frac{1}{x+4x+8} \cdot \frac{1}{x+8}$$

$$y = \frac{\cancel{x+8} - x - 4x - 8}{(x+4x+8)(x+8)}$$

$$y = \frac{\cancel{4x}}{(x+4x+8)(x+8)} = \frac{1}{(x+8)^2}$$

$$\frac{1}{(x+8)^2}$$

$$y = \frac{5}{3x + 3 - 1x - 4} - \frac{5}{3x - 4}$$

$$\frac{15x - 20 + 15x + 15 - 15x - 20}{(3x + 3 - 1x - 4)(3x - 4)}$$

$$\frac{4 + 4}{4x} = \frac{15 - 15x}{(3x + 3 - 1x - 4)(3x - 4)} = 4x$$

$$\frac{4 + 4}{4x} = \frac{15}{(3x + 3 - 1x - 4)(3x - 4)} \quad (\lim 4x \rightarrow 0)$$

$$\frac{4 + 4}{4x} = \frac{15}{(3x - 4)^2}$$

$$y = \frac{5}{(1+x^2)}$$

$$\frac{5 + \Delta y}{1 + \Delta x}$$

$$y = \frac{5}{1 + (x + \Delta x)^2}$$

$$\Delta y = \frac{5}{1 + (1 + \Delta x)^2} - \frac{5}{(1 + x^2)}$$

$$\Delta y = \frac{5(1 + x^2) - 5(1 + 2x\Delta x + \Delta x^2)}{(1 + (x + \Delta x)^2)(1 + x^2)}$$

$$\Delta y = \frac{10 - 5\Delta x}{(1 + (x + \Delta x)^2)(1 + x^2)}$$

$$\Delta y = -10x$$

$$\Delta x = (1 + x^2)^2$$

9 $y = (1 + 2x)^2$

$$y = 1 + \Delta x$$

$$y = \sqrt{1 + \Delta x} + \Delta x + 1 + \Delta x$$

$$y = \Delta \Delta x - \Delta x$$

$$\frac{\Delta y}{\Delta x} = 1$$