Tema | Día | Mes | Año

ESTILO

Aux

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$f''(c) = 12x - 8$

$f''\left(\frac{4}{3}\right) = 12\left(\frac{4}{3}\right) - 8$

$f''\left(\frac{4}{3}\right) = \frac{4 \cancel{12}}{1} \cdot \frac{4}{\cancel{3}} - 8$

$f''\left(\frac{4}{3}\right) = 16 - 8 = 8$ min

$C = (0,0) \rightarrow$ Máx

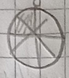
$f(0) = 2(0)^3 - 4(0)^2$

$f(0) = 0$

$f''(0) = 12(0) - 8$

$f''(0) = -8$ Máx

$\frac{4}{4}$ $\frac{8}{8}$



$\frac{1}{4} \cdot \frac{2}{2}$ $\frac{2}{8}$

$\frac{2}{8}$

$\lim_{x \to 0}$

$f(x) = \ln(x)$

$f'(x) = \frac{1}{x} \leftrightarrow g'(x) = 1$

$f(x) =$

$\lim_{x \to 1} \frac{\ln x}{x-1}$

$g(x) =$

$g(x) = x - 1$

$\lim_{x \to 1} \frac{f'(x) = \frac{1}{x}}{g'(x) = \frac{1}{1}} = \frac{1}{x}$

$\lim_{x \to 1} \frac{1}{x}$

$\lim_{x \to 1} \frac{1}{(1)} = 1$

$f(x) = e^x$

$f'(x) = e^x$

$f(x) = \text{Sen}(3x)$

$f'(x) = 3 \cdot \cos(3x)$

$g(x) = x - \frac{3}{2} \cdot \text{Sen}(2x)$

$g'(x) = 1 - \frac{3}{2} \cdot 2 \cdot \cos(2x)$

$g'(x) = 1 - 3\cos(2x)$

$\lim_{x \to 0} \frac{\text{Sen}(3x)}{x - \frac{3}{2}\text{Sen}(2x)} = \frac{0}{0}$

$\lim_{x \to 0} \frac{3\cos(3x)}{1 - 3\cos(2x)}$

$\lim_{x \to 0} \frac{3\cos(3 \cdot 0)}{1 - 3\cos(2 \cdot 0)}$

$\lim_{x \to 0} \frac{3 \cdot 1}{1 - 3 \cdot 1} = \frac{3}{-2} = -\frac{3}{2}$

$1 - 3$

$\ln(x)$

$\frac{x}{x}$

Notas

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① f' y f'' $\quad f(x) = -x^2 \rightarrow y = f(x)$

- $f'(x) = -2x \rightarrow$ ¿P."C"? $= 0$
- $f''(x) = -2$

② $f'(x) = 0 \rightarrow C = (\overset{\checkmark}{x}, \overset{\checkmark}{y})$

$-2 \cdot x = 0$ | $f(0) = -(0)^2$ | $C = (0,0) \rightarrow$ Máx //

$x = \frac{0}{-2}$ | $f(0) = 0$

$x = 0$ | $y = 0$

③ $f''(x) = 0 \rightarrow$ P.I $= 0$ | $f''(\overset{x=0}{x}) = -2$

$f''(x) > 0 \rightarrow$ P.mín $= +$ | $f''(0) = -2$

$f''(x) < 0 \rightarrow$ P.máx $= -$

$f(x) = 2x^3 - 4x^2$

① $f'(x) = 6x^2 - 8x$

$f''(x) = 12x - 8$

② $f'(x) = 0 \rightarrow$ ¿P."C"? $\rightarrow C = (\overset{x}{\frac{4}{3}}, \overset{y}{\frac{-64}{27}})$ - P.mín

$6x^2 - 8x = 0$ | $f(\frac{4}{3}) = 2(\frac{4}{3})^3 - 4(\frac{4}{3})^2$

$x(6x - 8) = 0 \rightarrow x = 0$

$6x - 8 = 0$ | $f(\frac{4}{3}) = 2 \cdot \frac{64}{27} - 4 \cdot \frac{16}{9}$

$6x = +8$ | $f(\frac{4}{3}) = \frac{128}{27} - \frac{64}{9} = \frac{-64}{27} = y$

$x = \frac{\cancel{8}^{4}}{\cancel{6}_{3}} = \frac{4}{3}$

$\frac{128}{27} - \frac{64}{9}$ | $1 = \frac{4}{4}$ $\quad 1 = \frac{8}{8}$ $\quad 1 = \frac{2}{2}$

$\frac{128}{27} - \frac{64}{9} \cdot \frac{3}{3}$

$\frac{128}{27} - \frac{192}{27} = \frac{-64}{27}$ | $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$ $\quad \frac{1}{8} + \frac{1}{4} \rightarrow \frac{1}{8} + \frac{1}{4} \cdot \frac{2}{2} = \frac{1}{8} + \frac{2}{8} = \frac{3}{8}$

$\frac{1}{4} = \frac{2}{8}$

Notas

$F''(x) = -2$

$F''(0) = -2$

$F(x) = 2x^3 - 4x^2$

$F'(x) = 6x^2 - 8x$

$F''(x) = 12x - 8$

Encontrar Puntos Cineticos

$F'(x) = 0 \to ? = \text{"}C\text{"} \to C = \left(\frac{4}{3}, \frac{-64}{27}\right)$

$6x^2 - 8x = 0$

$x(6x-8) = 0 \to x = 0$

$6x - 8 = 0$

$6x = +8$

$x = \frac{\cancel{8}^{4}}{\cancel{6}_{3}} \quad x = \frac{4}{3}$

$F\left(\frac{4}{3}\right) = 2\left(\frac{4}{3}\right)^3 - 4\left(\frac{4}{3}\right)^2$

$F\left(\frac{4}{3}\right) = 2 \cdot \frac{64}{27} - 4 \cdot \frac{16}{9}$

$F\left(\frac{4}{5}\right) = \frac{128}{27} - \frac{64}{9} = \frac{-64}{27}$

$\frac{128}{27} - \frac{192}{27} = \frac{-64}{27} \qquad \frac{128}{27} - \frac{64}{9} \cdot \frac{3}{3}$

Reemplaza la segunda D

$F''(c) = 12x - 8$

$F''\left(\frac{4}{3}\right) = 12\left(\frac{4}{3}\right) - 8$

$F''\left(\frac{4}{3}\right) = \frac{\cancel{12}^{4}}{1} \cdot \frac{4}{\cancel{3}} - 8$

$F''\left(\frac{4}{3}\right) = 16 - 8 = 8 \text{ min}$

$C = (0, \ )$

$F(0) = 2(0)^3 - 4(0)^2$

$F(0) = 0$

$F''(0) = 12(0) - 8$

$F''(0) = -8 \text{ max}$

$f'(x) = 0 \rightarrow C = (x, y) \rightarrow C\ (0, 0) = \text{Max}$

$-2x = 0$ | $f(0) = -(0)^2$

$x = \frac{0}{-2}$ | $f(0) = 0$

$x = 0$ | $y = 0$

$f''(x) = 0 \rightarrow$ Punto de inflexion

$f''(x) > 0 \rightarrow$ Punto min +

$f''(x) < 0 \rightarrow$ Punto max -

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Clase

Reyli Rosado

$\frac{5}{3} - \frac{4}{7} =$ $\frac{10}{9} + \frac{1}{2} =$

$\frac{1}{2} + \frac{3}{4} =$ $\frac{3}{7} + \frac{1}{5} - \frac{10}{3}$

Regla Potencia

Si $f(x) = x^n$, entonces $f'(x) = n \cdot x^{n-1}$

Ejercicio1: Deriva $f(x) = x^5$; $f'(x) = 5x^4$

Ejercicio2: Deriva $f(x) = 3x^7$; $f'(x)\ 21x^6$

Regla de la constante

Si $f(x) = c$, donde c es una constante, entonces $f'(x) = 0$

Ejercicio1: Deriva $f(x) = 7 = 0$

Ejercicio2: Deriva $f(x) = -3 = 0$

Regla de la suma

Si $f(x) = g(x) + h(x)$, entonces $f'(x) = g'(x) + h'(x)$

Deriva $f(x) = x^2 + 5x = f'(x) = 2x + 5$

Deriva $f(x) = 4x^3 - x^2 = f'(x) = 12x^2 - 2x$

Regla del Producto

Si $f(x) = g(x) \cdot h(x)$, entonces $f'(x) = g'(x) \cdot h(x) + g(x) \cdot h'(x)$

Deriva $f(x) = x^2 \cdot \sin(x)$

$f'(x) = 2x \cdot \sin(x) + x^2 \cdot \cos(x)$

Deriva $f(x) = 3 \cdot x^7$

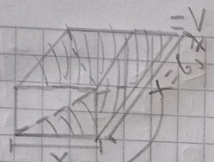
$f'(x) = 0 \cdot x^7 + 3 \cdot 7x^6 =$

$= f'(x) = 0 + 21x^6 = f'(x) = 21x^6$

Notas

Notas

$y = \boxed{6{,}6}$



$= 6{,}17$

$V = 252\,m^3 = y \cdot x \cdot x = V = x^2 \cdot y$

$f = \square = 5 \cdot x^2$

$T = \square = 2{,}5 \cdot x^2$

$L = \square = 3{,}5 \cdot 4 \cdot xy$

$f(x) = 5 \cdot x^2 + 2{,}5x^2 + 14xy$

$f(x) = 7{,}5x^2 + 14x\left(\frac{252}{x^2}\right)$

$f(x) = 7{,}5 + \frac{3528}{x}$

$f'(x) = 15x + \frac{3528}{x^2}$

$f'(x) = -\frac{3528}{x^2} + 15x$

$\boxed{A}$ x x^2

Aux

$x^2 \cdot y = 252$

$y = \frac{252}{x^2}$

$-\frac{3528}{x^2} + 15x = 0$

$-\frac{3528}{x^2} = -15x$

$-3528 = -15x \cdot x^2$

$-3528 = -15x^3$

$x^3 = \frac{+3528}{+15}$

$x^3 = +\frac{1176}{5}$ $f(x) = y$

$\sqrt[3]{x^3} = \sqrt[3]{\frac{1176}{5}}$

$\boxed{x = 6{,}17}$

$f(x) = 7{,}5x^2 + \frac{3528}{x}$

$f(x) = 7{,}5(6{,}17)^2 + \frac{3528}{(6{,}17)}$

$f(6{,}17) = 285{,}51 + 571{,}79$

$f(6{,}17) = 857{,}3$

Aux

$b(x) = \frac{3528}{x^1}$

$b(x) = 3528 \cdot x^{-1-1}$

$b'(x) = 3528 \cdot (-1) \cdot x^{-2}$

$b'(x) = -3528 \cdot x^{-2}$

$b'(x) = -\frac{3528}{x^2}$

$y = \frac{252}{x^2}$

$y = \frac{252}{(6{,}17)^2}$

$y = 6{,}61$