



**Universidad del
Sureste**
**Campus Comitán
de Domínguez,
Chiapas**
**Licenciatura
medicina humana**



Tema: evidencia

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Grupo: B Grado: 1

Materia: biomatemáticas

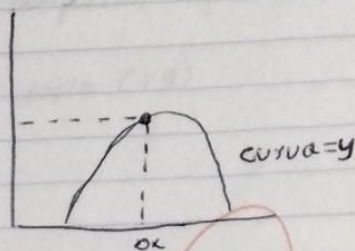
Docente: ROSVANI MARGINE MORALES

IRECTA

Derivada de la función en el punto marcado es equivalente a la pendiente de la recta de la tangente

Ho \rightarrow v. independiente

Hv \rightarrow v. dependiente



Función

1o. $f(x) = C$

Derivada

$f'(x) = 0$ $x^1 = 1$

2o. $f(x) = x^n$

$f'(x) = n x^{n-1}$

$x^3 = 3x^2$

2o. A) $x^7 = 7x^6 = 117,649$

B) $x^{10} = 10x^9 = 1,000,000,000$

C) $x^{20} = 20x^{19}$

D) $x^2 = 2x$

E) $x^4 = 4x^3$

3o. $f(x) = C f(x)$

$\frac{d}{dx}$

4o. $f(x) = (f(x) + g(x))$

$f'(x) = f' + g'$

4o.

1) $4x^3 + 6x^2 = 12x^2 + 12x$

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

3) $2x^2 - 8x = 4x - 8$

4) $7x^3 - 5x^5 = 21x^2 - 25x^4$

5) $10x^2 + 2x = 20x + 2$

3o. 1) $7x^6 = 7(6x^5) = 42x^5$

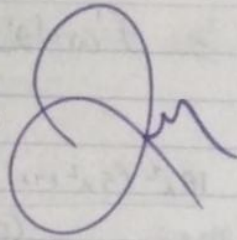
2) $8x^2 = 8(2x) = 16x$

3) $6x = 6x$

4) $2x^3 = 3(2x^2) = 6x^2$

5) $9x^4 = 9(4x^3) = 36x^3$

- ① $f(x) = 3x^2 = 6x$ ✓
 ② $f(x) = 5 = 5^0 = 0$
 ③ $f(x) = 5 = 5^0 = 0$
 ④ $f(x) = -2x = -2$
 ⑤ $f(x) = -2x + 2 = 0 = -2$
 ⑥ $f(x) = 2x^2 - 5 = 4x - 5$



$$5 \cdot (4x^2 + x) + (5x^2 - x)$$

$$[10x + 1(4x^2 + x)] + [5x + 1(5x^2 - x)]$$

$$A) (4x + 1) + (10x^2 - 5)$$

$$[20x + (4x)] + [4 + (10x^2)]$$

$$B) (3x^3 + 2x) + (6x^4 + 6)$$

$$[24x^3 + (3x^3 + 2x)] + [9x^2 + 2 + (6x^4)]$$

$$C) (2x^4 + x^3) - (5x^3 + 6)$$

$$[15x^2 + (2x^4 + 3x^2)] - [8x^3 + 3x^2 + (5x^3)]$$

$$D) (32x - 2) - (6x - 1)$$

$$(8 + (32x - 2)) - (32 - (6x))$$

$$E) (7x^2 + 7) + (2x - 3)$$

$$(2 + (7x^2)) + (14x - (2x))$$

$$6) f(x) = \left[\frac{f(x)}{g(x)} \right] = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{g(x)^2}$$

$$a) f(x) = \frac{5x^2 + 4x}{6x^3} = \frac{10x(5x^2 + 4x) - (5x^2 + 4x)(6x^2)}{(6x^3)^2}$$

$$b) f(x) = \frac{3x^5 - 7x^4}{2x} = \frac{2(3x^5 - 7x^4) - 15x^4 - 28x^3(2x)}{(2x)^2}$$

$$c) f(x) = \frac{10x^2 + 5x}{15x - 2} = \frac{15(10x^2 + 5x) - 20x + 5(15x - 2)}{(15x - 2)^2}$$

$$d) f(x) = \frac{2x^{10}}{2x^5} = \frac{10x^4(2x^5) - 20x^9(2x)}{(2x^5)^2}$$

$$e) f(x) = \frac{58x}{60x} = \frac{60(58x) - 58(60x)}{(60x)^2}$$

Teorema: la derivada de la potencia entera, de la función $f(x)$.

Sea $y = N [f(x)]^n$ $n = 1$ $f'(x) = 58$ $-(58x) + 58$

$$y' = N [f(x)]^{n-1} (f'(x))$$

$$y' = (3) (2x + 3)^{3-1} (2)$$

$$y' = (9) (2x + 3)^2 (2)$$

$$y = 6 (2x + 3)^2$$

$$1) y' = (6x^3 - 5x^2 + 4)^3 = 3(6x^3 - 5x^2 + 4)^2 (18x^2 - 10)$$

$$\underline{(54x^2 - 30)(6x^3 - 5x^2 + 4)^2} \quad \checkmark$$

$$2) y' = (5x^2 + 10x)^2 \cdot 2(5x^2 + 10x) \cdot (10x + 10)$$

$$\underline{20x + 20 (5x^2 + 10x)} \quad \checkmark$$

$$3) y' = (7x^3 - 2x^2 + 5)^4 \cdot 4(7x^3 - 2x^2 + 5)^3 (21x^2 - 2x)$$

$$\underline{84x^2 - 8x (7x^3 - 2x^2 + 5)^3} \quad \checkmark$$

$$4) y' = (2x^{10} - 2x^5)^5 \cdot 5(2x^{10} - 2x^5)^4 (20x^9 - 10x^4)$$

$$\underline{100x^9 - 50x^4 (2x^{10} - 2x^5)^4} \quad \checkmark$$

$$5) y' = (3x^3 - 2x^2)^6$$

$$6(3x^3 - 2x^2)^5 (9x^2 - 4x)$$

$$\underline{54x^2 - 24x (3x^3 - 2x^2)^5} \quad \checkmark$$