l universidad del sureste

Campus Comitán

Licenciatura en medicina

tema: Demografía general de las enfermedades transmisibles y no transmisibles

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Grado: 2

Grupo: A

Materia: Biomatematicas

Nombre del docente: Rosvani M. Morales Irecta

Teorema: La derivada de 1 potencia entera de 1 funcion sea

$y = [f(x)]^n$ entonces

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

Ejemplo:

$f(x) = (2x+3)^3$

$f'(x) = 3\,(2x+3)^{3-1}\,(2)$

$f'(x) = 3\,(2x+3)^2\,(2)$

$f'(x) = 6\,(2x+3)^2$

Ejercicios

1) $f(x) = (3x^4 - 5)^2$

$(2)(3x^4-5)^{2-1}(12x^3)$

$24x^3(3x^4-5)$

2) $f(x) = (x+2)^3$

$3(x+2)^2(1)$

$3(x+2)^2$

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

$4(6x^2-5x+4)^{4-1}(12x-5)$

$48x - 20\,(6x^2 - 5x + 4)^3$

4) $f(x) = (2xy - 3)^5$

$5(2xy - 3)^{5-1}\ (2)$

$10(2xy-3)^4$

5) $f(x) = (5x^2 + 4y - 3)^2$

$2(5x^2+4y-3)^{2-1} = (10x+4)$

$20x+8\ (5x^2+4y-3)$

TAREA

1) $f(x) = 3x^2$ $6x$ $3(2x)$

2) $f(x) = 5$ 0

3) $f(x) - 2x$

-2

4) $f(x) = -2x + 2$

-2

5) $f(x) = -2x^2 + 2$

$-4x$

6) $f(x) = 4x^3 + 6x$

$12x^2 + 6x$

7) $f(x) = 8x^6$ $48x^5$

$8(6x^5)$

8) $f(x) = 7$ 0

9) $f(x) = (3x^3 + 2x) + (6x^4 + 6)$

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

10) $f(x) = (8x + 2) - (3x^2 - x)$

$6x(8x + 2) - 8x(3x^2 - x)$

11) $f(x) = (7x^4 - 6x^3 - 5x^2 - x)^3$

$2(7x^4 - 6x^3 - 5x^2 - x)^{3-1}(28x^3 - 18x^2 - 10x)$

$56x^3 - 36x^2 - 20x)(7x^4 - 6x^3 - 5x^2 - x)^2$

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

$$\frac{8x^3(8x^6 - 6x^3 - 4) - (48x^5 - 18x^2)(2x^4)}{(2x^4)^2}$$

13) $f(x) = \frac{2x^3 - x^2}{6x^2 + x + 2}$

$$\frac{12x(2x^3 - x^2) - (6x^2 - 2x)(6x^2 + x + 2)}{(6x^2 + x + 2)^2}$$

14) $f(x) = 78 \quad 0$

15) $f(x) = (2x^3 + 5x^2 + 6x)^4$

$4(2x^3 + 5x^2 + 6x)^{4-1}(6x + 10x + 6)$

$24x + 40x + 24(2x^3 + 5x^2 + 6x)^3$

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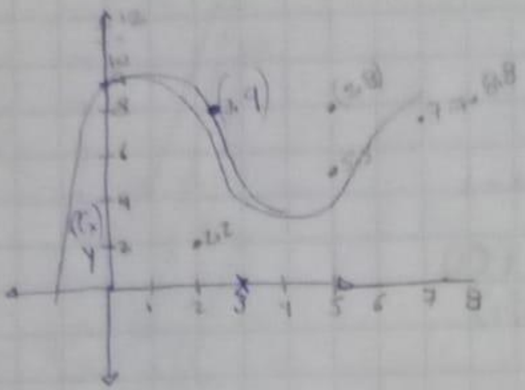
23/03/22

Dominio físico



Ejemplo
$\lim = 3x$
$x \to$

$(3)(3) = 9$

Ejercicios

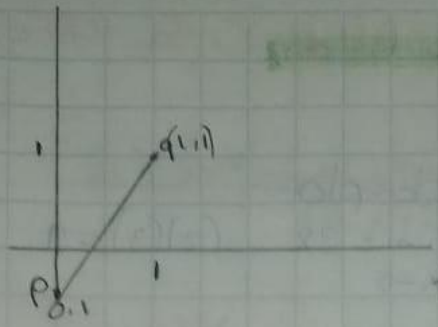
1º $(x = 5x+3 , f(x))$
$\lim 5x+3$ $\quad 5(1)+3 = 8$
$x \to 5$

2) $(x = 5x^2 , f(x))$
$\lim 5x^2$ $\quad 5(1)^2 = 5$
$x \to 5$

3) $(x = 2x^3 , f(x))$
$\lim = 2x^3$ $\quad 2(1)^3 = 2$
$x \to 2$

4) $(x = 7x = f(x))$
$\lim 7x$ $\quad 7(1) = 7$
$x \to 7$

5) $(x = 8x^2 , f(x))$
$\lim = 8x^2$ $\quad 8(1)^2 = 8$
$x \to 8$



$f = 2x - 1$

si $f(0)$ — si $f(1)$

P $(0,-1)$ — q $(1,1)$

Ejercicios

si $f(1)$ — si $f(3)$

P $(1,1)$ — q ( )

1) $f(x) = 3x - 2$

$f(1) = 3(1) - 2$ — $f(3) = 3(3) - 2$ — $fx = (3,6)$

$f = 3 - 2$ — $f = (1,1)$ — $f(3) = 9 - 2$ — $f = 4$

2) $f(x) = x^2 + 3$

$f(1) = (1)^2 + 3$ — $f(3) = (3)^2 + 3$ — $fx) = (3,12)$

$f(1) = 1 + 3$ — $fx(1,4)$ — $f(3) = 9 + 3 = 12$

3) $f(x) = -x + 2$

$f(1) = -1 + 2$ — $f(3) = -3 + 2$ — $(3,-1)$

$f(1) = -1$ — $(1,-1)$ — $f(3) = -1$

4) $f(x) = 6x + 1$

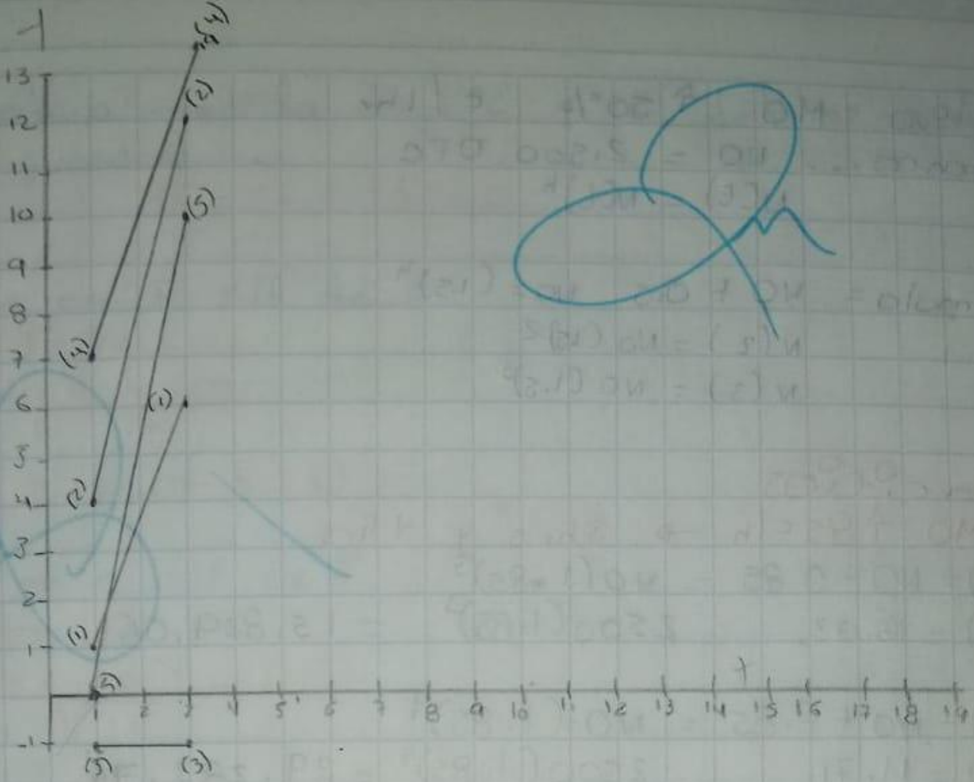
$f(1) = 6(1) + 1$ — $f(3) = 6(3) + 1$

$f(1) = 6 + 1$ — $f(1) = (1,7)$ — $f(3) = 18 + 1$ — $fx(3,19)$

5) $(fx) = 5x - 5$

$f(1) = 5(1) - 5$ — $fx(1,0)$ — $f(3)\ 5(3) - 5$ — $f(x) = (3,10)$

$f(1) = 5 - 5$ — $f(3)\ 15 - 5$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Cultivo MO ↑ 50% c / 1hr
Entonces... $NO = 2{,}500$ UFC
$N(t) = N(t)^h$

formula = $NO + 0.5 \quad NO = (1.5)^h$
$N(2) = No\,(1.5)^2$
$N(3) = NO\,(1.5)^3$

Ejercicios
1° MO ↑ 85 c/h → 3hrs y 4 hrs
$N(1) = NO + 0.85 = NO(1.85)^3 \quad 2500(1.85)^3 = 15{,}829.06$
$N(2) = 16.33$

$N(1) = NO + 0.85 = NO = (1.85)^4$
$N(4) = 11.71 \quad 2500(1.85)^4 = 29{,}283.76$

2) MO ↑ 60 c/h → 1 hr y 5 hrs
$N(1) = NO + (0.6) = NO = (1.6)^1 = 4{,}125$
$N = 1.6 \quad 2500(1.6)^1$

$N(1) = NO + (0.6) = NO = (1.6)^5 = 26{,}214.4$
$N = 10.48 \quad 2500(1.6)^5$
3) MO ↑ 20 c/h → 1 hr y 2 hrs
$N(1) = NO + 0.2 = NO = (1.2)^1 = (2500(1.2)^1 = 3{,}000$
$N(1) = 1.2$
$N(1) = NO + 0.2 = NO(1.2)^2 \quad 2500\,(1.2)^2 = 3{,}600$
$N = 1.44$
4) MO ↑ 35 c/h → 6 hrs / 12hrs y 24hrs.
$N(1) = NO + 0.35 = NO(1.35)^6 \quad N = 6.05 \quad 2500(1.35)^6 = 15{,}133.61$
$N(1) = NO + (0.35) = NO(1.35)^{12} = N = 36.64 \quad 2500(1.35)^{12} = 91{,}610.49$
$N(1) = NO + (0.35) = NO(1.35)^{24} = N = 1{,}342.79$
$2500(1.35)^{24} = 3{,}356{,}993.131$

30/03/22

Temperatura medida en °C y °F determinada por la igualdad.

$$9C - 5F + 160 = 0$$

Expresa en F c/f de C

$$5F = 9C + 160$$

$$F = \frac{9C + 160}{5}$$

$$F = \frac{9}{5}C + 32 \rightarrow F(C)$$

Expresa en C c/f de F

$$9C = 5F - 160$$

$$C = \frac{5F - 160}{9} \rightarrow C(F).$$

Ejercicios 38°C

$$5F = \frac{9(38) + 160}{5}$$

$$F = \frac{342}{5} + 32$$

$$F = 68.4 + 32$$

$$F = 100.4\,°F$$

Comprobación

$$C = \frac{5(100.4) - 100}{9}$$

$$C = \frac{502 - 160}{9}$$

$$C = \frac{342}{9} = 38\,°C$$

Convierte de °C a °F o °F a °C según corresponda y comprueba.

1) 20°C

$$5F = \frac{9(20)+160}{5}$$

$$F = \frac{180}{5} + 32$$

$$F = 36 + 32$$

$$F = 168\ °F$$

Comprobación.

$$C = \frac{5(68)-100}{9}$$

$$C = \frac{340-160}{9}$$

$$C = \frac{180}{9} = 20\ °C$$

2º 104 °F

$$9C = \frac{5(104)-160}{9}$$

$$C = \frac{520}{9} - 160$$

$$C = 57.7 - 160$$

$$C = 2.77$$

3º 140 °F

$$9C = \frac{5(140)-160}{9}$$

$$C = \frac{700-160}{9}$$

$$C = \frac{540}{9} = 60\ °C$$

$$5F = 5(60) - 100$$

$$F =$$

4º 37.2 °C

$$5F = \frac{9(37.2)+160}{5}$$

$$F = \frac{337.5}{5} + 32$$

$$F = 75.5 + 32$$

$$F = 107.5\ °F$$

5º 35.5 °C

$$5F = \frac{9(35.5)+160}{5}$$

$$F = \frac{319.5}{5} + 32$$

$$F = 63.9 + 32$$

$$F = 95.9$$

6º 95° F

$$9C = \frac{5(95)-160}{9}$$

$$C = \frac{475-160}{9}$$

$$C = \frac{315}{9} = 35$$

7º −4 °F

$$9c = \frac{5(-4)-160}{9}$$

$$C = \frac{-20-160}{9}$$

$$c = \frac{180}{9} = 20$$

$$C = \frac{5(107.5)-100}{9}$$

$$C = \frac{537.5-160}{9}$$

$$C = \frac{377.5}{9} =$$

8 = -5 °C ✓

$$5F = \frac{9(-5) + 160}{5}$$

$$F = \frac{-45}{5} + 132$$

$$F \ -9 + 32$$

$$F = 23$$