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Nombre del profesor: Dra. Rosvani Margine Morales Irecta

Nombre del trabajo: "A seguir derivando…"

Materia: Biomatemáticas

Grado: 2

Grupo: A

Comitán de Domínguez Chiapas a 2 de abril de 2022.

EJERCICIOS EN CLASE 22/03/22

1) $f(x) = \frac{5x^2+4x}{6x^3} = \frac{18x^2(5x^2+4x)-(10x+4)(6x^3)}{(6x^3)^2}$

2) $f(x) = \frac{3x^5-7x^4}{2x} = \frac{2(3x^5-7x^4)-(15x^4-14x^3)(2x)}{(2x)^2}$

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

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

5) $f(x)\ \frac{58x}{60x}\quad \frac{60(58x)-(58)(60x)}{(60x)^2}$

TEOREMA: La derivada de 1 potencia entera de 1 función sea:

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

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

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

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

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

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

EJERCICIOS DEL TEOREMA

22/03/22

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

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

$f'(x) = 24x^3(3x^4-5)$

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

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

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

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

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

$f'(x) = 48x - 20(6x^2-5x+4)^3$

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

$f'(x) = 5(2xy-3)^{5-1}(2y)$

$f'(x) = 10y(2xy-3)^4$

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

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

$f'(x) = 20x(5x^2+4y-3)$

22/03/22

TAREA

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

2) $f(x) = 5$
$f'(x) = 0$

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

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

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

6) $f(x) = 4x^3 + 6x$
$f'(x) = 12x^2 + 6$

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

8) $f(x) = 7$
$f(x) = 0$

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

10) $f(x) = (8x + 2) - (3x^2 - x)$
$f'(x) = 6x - 1(8x + 2) - 8(3x^2 - x)$

11) $f(x) = (7x^4 + 6x^3 - 5x^2 + x)^3$
$f(x) = (3)(7x^4 + 6x^3 - 5x^2 + x)^{3-1}(28x^3 + 18x^2 - 10x + 1)$
$f(x) = 84x^3 + 54x^2 - 30x + 3(7x^4 + 6x^3 - 5x^2 + x)^2$

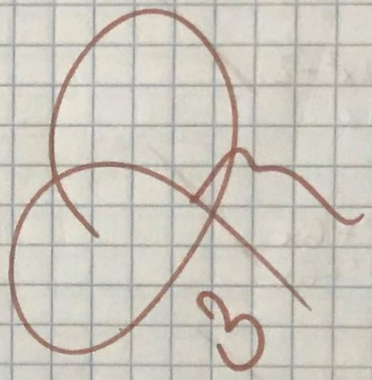
TAREA 22/03/24

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) $f(x) = \frac{2x^3 - 1x^2}{6x^2 + x + 2} = \frac{12x + 1(2x^3 - x^2) - 6x^2 - 2x(6x^2 + x + 2)}{(6x^2 + x + 2)^2}$

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

15) $f(x) = (2x^3 + 5x^2 + 6x)^4$
$f(x) = (4)(2x^3 + 5x^2 + 6x)^3 (6x^2 + 10x + 6)$
$f(x) = 24x^2 + 40x + 24(2x^3 + 5x^2 + 6x)^3$



EJERCICIOS EN CLASE 23/03/22

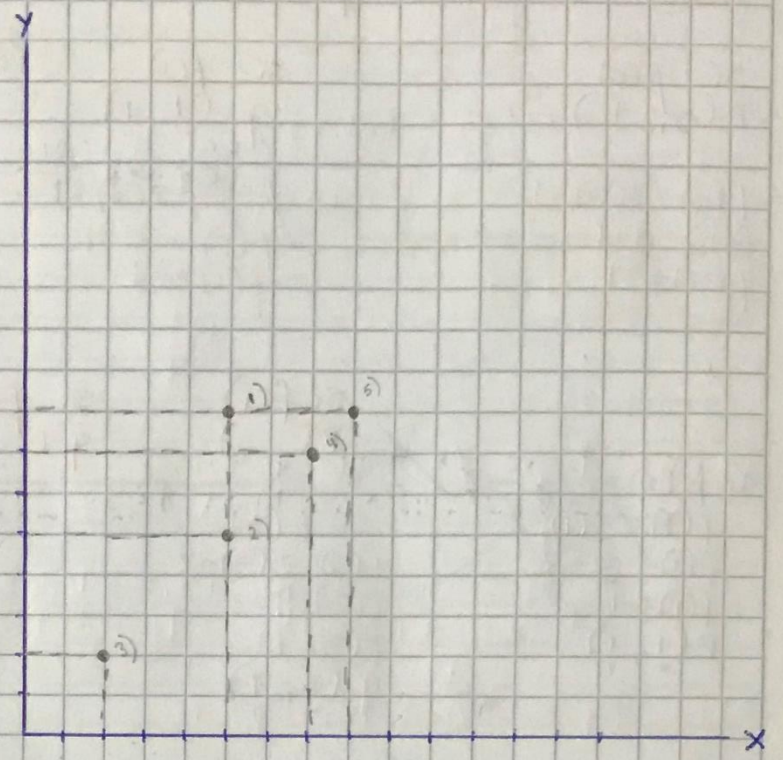
1) $(x = 5x+3, f(x))$
$f(x) = 5(1)+3$
$y = 8$

2) $(x = 5x^2, f(x))$
$f(x) = 5(1)^2$
$y = 5$

3) $(x = 2x^3, f(x))$
$f(x) = 2(1)^3$
$y = 2$

4) $(x = 7x, f(x))$
$f(x) = 7(1)$
$y = 7$

5) $(x = 8x^2, f(x))$
$f(x) = 8(1)^2$
$y = 8$



29/03/22

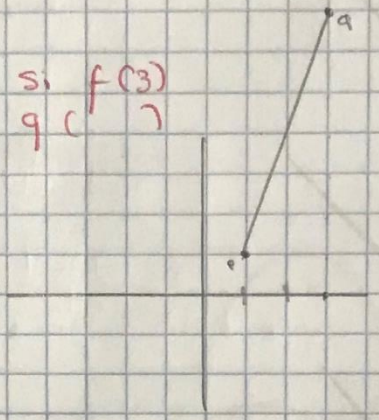
Traza la grafica $f(x) = 2x - 1$

Si $f(0)$
$P(0, -1)$

$f(0) = 2(0) - 1$
$f(0) = 0 - 1$
$f(0) = -1$

Si $f(1)$
$q(1, 1)$

$f(1) = 2(1) - 1$
$f(1) = 2 + 1$
$f(1) = 1$

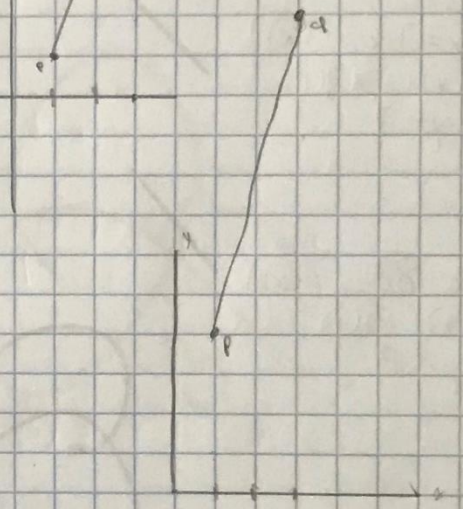


1- $f(x) = 3x - 2$

$f(1) = 3(1) - 2$
$f(1) = 3 - 2$
$f(1) = 1$
$P(1, 1)$
$x \quad y$

Si $f(3)$
$q(\ , \ )$

Si $f(3)$
$f(3) = 3(3) - 2$
$f(3) = 9 - 2$
$f(3) = 7$
$q(3, 7)$
$x \quad y$



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

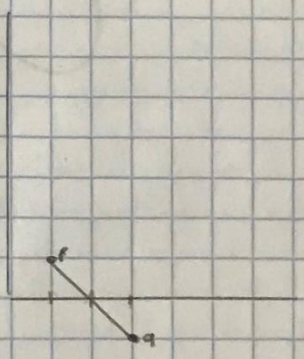
Si $f(1)$
$f(1) = (1)^2 + 3$
$f(1) = 1 + 3$
$f(1) = 4$
$P(1, 4)$

Si $f(3)$
$f(3) = (3)^2 + 3$
$f(3) = 9 + 3$
$f(3) = 12$
$Q(3, 12)$

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

Si $f(1)$
$f(1) = -1 + 2$
$f(1) = 1$
$P(1, 1)$

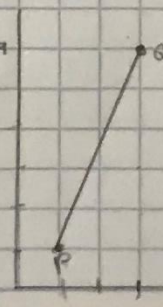
Si $f(3)$
$f(3) = -3 + 2$
$f(3) = -1$
$Q(3, -1)$



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

Si $f(1)$
$f(1) = 6(1) + 1$
$f(1) = 6 + 1$
$f(1) = 7$
$P(1, 1)$

Si $f(3)$
$f(3) = 6(3) + 1$
$f(3) = 18 + 1$
$f(3) = 19$
$Q(3, 19)$



29/03/22

5:) $f(x) = 5x - 5$

Si $f(1)$

$f(1) = 5(1) - 5$

$f(1) = 5 - 5$

$f(1) = 0$

P(1,0)

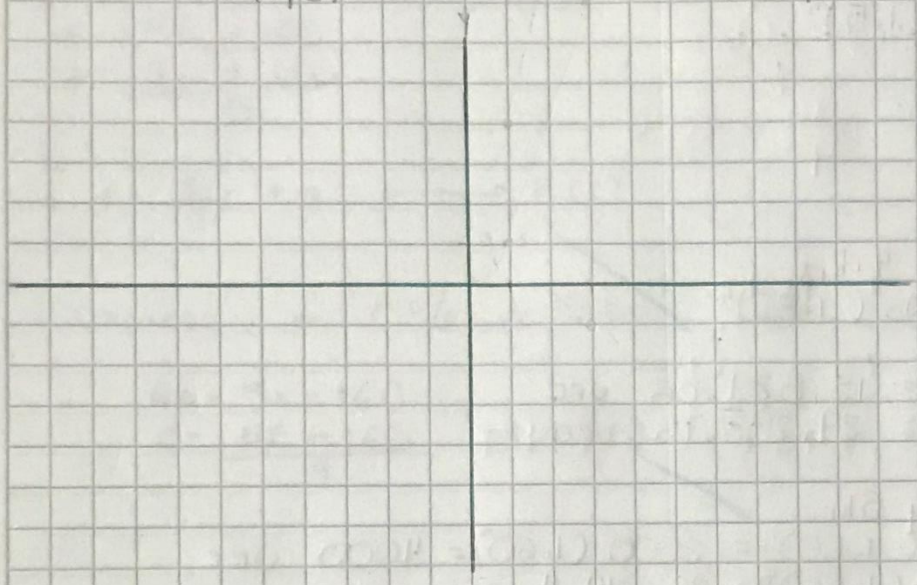
Si $f(3)$

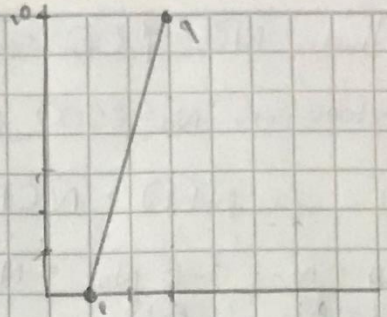
$f(3) = 5(3) - 5$

$f(3) = 15 - 5$

$f(3) = 10$

Q(3,10)





09/03/22

Cultivo MO ↑50% c/1hr

Entonces... $N_0 = 2500$ UFC

$$N(t) = N(t)^h$$

$N_{(1)} = N_0 + 0.5\,N_0 = N_0(1.5)^h$
$N_2 = N_0\,(1.5)^2$
$N_3 = N_0\,(1.5)^3$

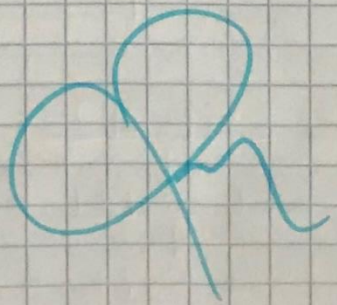
1) MO ↑85 c/h → 3hr y 4 hrs
$N(1) = N_0 + .85\,N_0 = N_0\,(1.85)^h$

$N(3) = 2500\,(1.85)^3 = 15,829.06$ UFC
$N(4) = 2500\,(1.85)^4 = 29,283.76$ UFC

2) MO ↑60% c/h → 1hr y 5hr
$N(1) = N_0 + .60\,N_0 = N_0\,(1.60)^h = 2500\,(1.60) = 4000$ UFC
$N(5) = 2500\,(1.60)^5 = 26,214.4$ UFC

3) MO ↑20% c/h → 1h y 2hr
$N(1) = N_0 + .20\,N_0 = N_0\,(1.20) = 2500\,(1.20) = 3000$ UFC
$N(2) = 2500\,(1.20)^2 = 3600$ UFC

) MO ↑35% c/h → 6hr / 12hr / 24hr
$N(1) = N_0 + .35\,N_0 = N_0\,(1.35)$
$N(6) = 2500\,(1.35)^6 = 15,133.61$ UFC
$N(12) = 2500\,(1.35)^{12} = 91,610.49$ UFC
$N(24) = 2500\,(1.35)^{24} = 3,356,993.13$ UFC



Convierte de °C a °F ó °F a °C según corresponda y comprueba

1= 20°C

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

$F = \frac{180+160}{5}$

$F = 36 + 32$

$F = 68\,F$

$C = \frac{5(68)+160}{9}$

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

$C = \frac{180}{9} = 20°C$

2= 104 F°

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

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

$C = \frac{360}{9} = 40°C$

$F = \frac{9(40)+160}{5}$

$F = \frac{360+160}{5}$

$F = 72 + 32 = 104°F$

3= 140°F

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

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

$C = \frac{540}{9} = 60°C$

$F = \frac{9(60)+160}{5}$

$F = \frac{540+160}{5}$

$F = 108 + 32 = 140°F$

4= 37.2°C

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

$F = \frac{334.8+160}{5}$

$F = 66.96 + 32 = 98.96°F$

$C = \frac{5(98.96)-160}{9}$

$C = \frac{494.8-160}{9}$

$C = \frac{334.8}{9} = 37.2°C$

5= 35.5°C

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

$F = \frac{319.5+160}{5}$

$F = 63.9 + 32 = 95.9°F$

$C = \frac{5(95.9)-160}{9}$

$C = \frac{479.5-160}{9}$

$C = \frac{319.5}{9} = 35.5°C$

6. 95°F

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

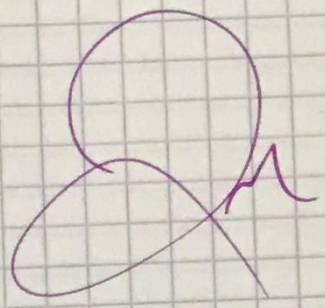
$C = \frac{475 - 160}{9}$

$C = \frac{315}{9} = 35°C$

$F = \frac{9(35) + 160}{5}$

$F = \frac{315 + 160}{5}$

$F = 63 + 32 = 95°F$



7. -4°F

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

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

$C = \frac{-180}{9} = -20°C$

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

$F = \frac{-180 + 160}{5}$

$F = -36 + 32 = -4°F$

8. -5°C

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

$F = \frac{-45 + 160}{5}$

$F = -9 + 32 = 23°F$

$C = \frac{5(23) - 160}{9}$

$C = \frac{115 - 160}{9}$

$C = \frac{-45}{9} = -5°C$