UNIVERSIDAD DEL SURESTE

Campus Comitán

Licenciatura en Medicina Humana

Tema: A seguir derivando

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Materia::Biomatemáticas

Grado: 1

Grupo: A

Comitán de Domínguez Chiapas a 2 de abril de 2022.

¡tarea!

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

2) $F(x) = 5 = \emptyset$

3) $P(x) = -2x = -2$

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

5) $F(x) = -2x^2 + 2 = -9x$

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

7) $F(x) = 8x6 = 48$

8) $F(x) = 7 = \emptyset$

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

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

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

→ 12) $F(x) = \dfrac{8x^4 - 6x^3 - 4}{2x^4}$ $\dfrac{(8x^3)(8x^4 + 6x^3 - 1)x(18x^5 - 18x^3)}{2x^4}$ $(2x^4)$

→ 13) $F(x) = \dfrac{2x^3 - x^2}{6x^2 + x + 2}$ $\dfrac{(12x+1)(2x^3 - x^2)(6x^2 - 3x^2)(6x^2 + x + 2)}{(6x^2 + x + 2)^2}$
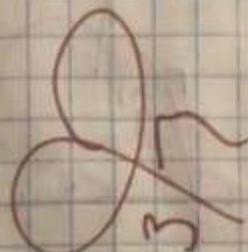
14) $F(x) = 18 \emptyset$

15) $F(x) = (2x^3 + 5x^2 + 6)^4$
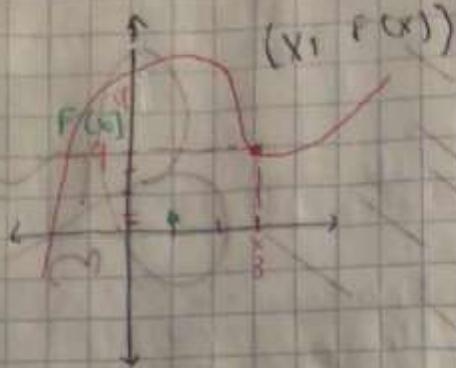$(4)(2x^3 + 5x^2 + 6)^3 (6x^2 - 5x)$
$(4)(2x^3 + 5x^2 + 6)^3 (12x - 5)$
$18A - 20 (2x^3 + 5x^2 + 6)$

Dominio Fisico

$(x, f(x))$

$F(x)$

ejemplo: $F(x) = 3x$
$y = 3x$
$F(x) = x$

$\lim\limits_{x \to 3} 3x$

ejercicios

1) $(x = \underline{5}x + 3, F(x)) = 5(1) + 3 = 8$

2) $(x = \underline{5}x^2, f(x)) = 5(1)^2 = 5$

3) $(x = \underline{2}x^2, F(x)) = 2(1)^2 = 2$

4) $(x = \underline{7}x, F(x)) = 7(1) = 7$

5) $(x = \underline{8}x^2, F(x)) \quad 8(1)^2 = 8$

$f_{(x)}$ $(x, f(x))$ conjunto = ordenado
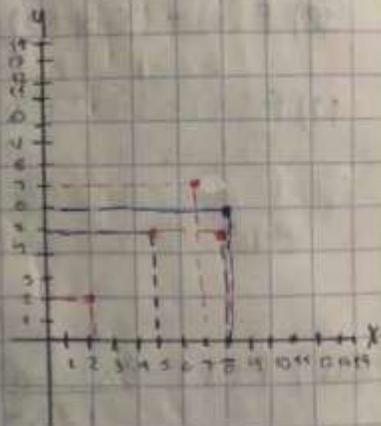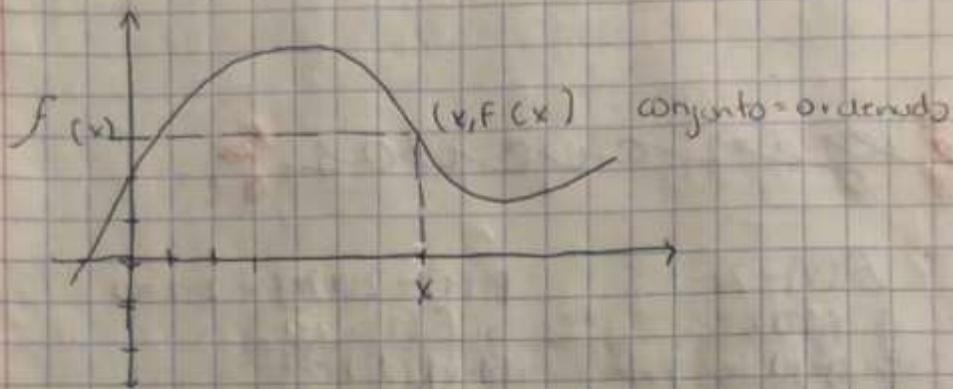
TRAZA LA GRAFICA $F(x) = 2x - 1$
si $f(6)$ si $f(\ )$
$P(0, 1)$ $q(1, 0)$

1) $q \to x$ $f(0) = 2(0) - 1$
$f(0) = 0 - 1$

TRAZA LA GRAFICA

si $f(1)$ si $f(3)$
$p(\ )$ $q(\ )$

1) $f(x) = 3x - 2$
$P = 3(1) - 2$, $P = 3 - 2$
$P = \textcircled{1} \to q = 3(3) - 2$
$q = 9 - 2$, $q = \textcircled{7}$

2) $f(x) = x^2 + 3$
$f(3) = (3)^2 + 3$ $f(3) = 9 + 3 = 12$
$f(1) = (1)^2 + 3$ $P(1) = 1 + 3 = 4$
$P = (1, 4)$
$= 4$

3) $f(x) = -x + 2$
$P = 1$ $q = -1$

4) $f(x) = 6x + 1$
$P = 7$ $q = 14$

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

$P = \emptyset$ $q = 12$

ejercicios :

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

Si $f(0)$ Si $f(1)$

$p(0 - 1)$ $q(1, 1) - 1$

  y 4   x 4

$y - f(x)$ $F(0) = 2(0) - 1$

                          $= 0 - 1$

                          $= -1$

TRAZA LA RECTA

Si $f(1)$ Si $f(3)$

$P(1, 1)$ $q(3, \quad)$

  xp 9   x

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

$P = 1$ $q = 7$ $P = 1$ $q = -1$

2) $f(x) = x^2 + 3$ 4) $f(x) = 6x + 1$

$P = 1$ $\eta = 4$ $P = 7$ $q = 19$

                               x   4

$5(x) = 5x - 5 \quad p = 0 \quad y = 12$

EJEMPLO

Cultivo MO ↑ 50% c/1hr
Entonces...   No = 2500 ufc
            N(t) = N(i)^h

$N(1) = No + 0.5 \ No = No (1.5)^h$
$N(2) = No (1.5)^2$
$N(3) = No (1.5)^3$
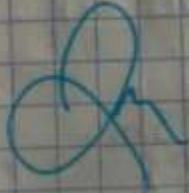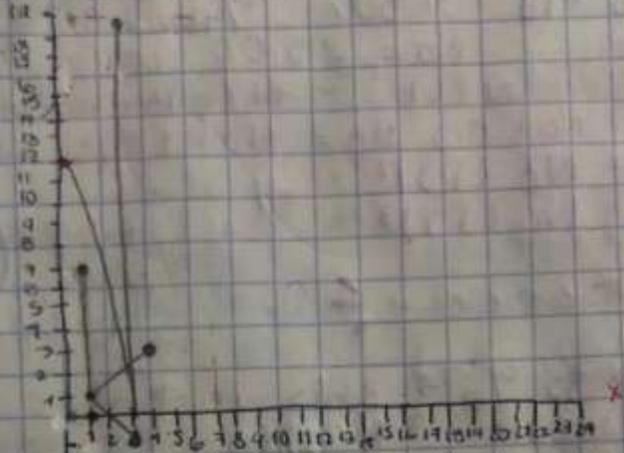
→ ejercicios ←

1) MO ↑ 85 c/h → 3 hrs y 4 hrs
$N = (1)(2.85)^3$ $N = (1)(0.55)^8$
$N = (1 + 2.55 (2500)$ $N (1) 3.4 (2500)$
$N = 2.55 (2500)$ $N = (1) 8,500$
$N = 6,375$

2) MO ↑ 60% c/h → 1hr y 5hrs
$N = (No)(60\%)$ $N = (No)(60\%)$
$N = (1)(0.6)$ $N = (1)(0.6)^5$
$N = 0.6 (2500)$ $N = 3 (2500)$
$N = 1500 \ ufc$ $N = 7,500 \ ufc$

3) MO ↑ 20% c/h → 1hr y 2hrs
$N = (No)(20\%)^1$ $N = (No)(20\%)^2$
$N = (1)(0.2)^1$ $N = (1)(0.2)^2$
$N = 0.2 (2500)$ $N = 0.04 (2500)$
$N = 500 \ ufc$ $N = 100 \ ufc$

4) MO ↑ 35% c/h → 6hrs / 12 hrs / 24 hrs
$N = (1)(35\%)^6 = (0.35)^6 = 2.1 \ hrs (2500) = 5,250 \ ufc$
$N = (1)(35\%)^{12} = (0.35)^{12} = 4.2 \ hrs (2500) 10,500 \ ufc$
$N = (1)(35\%)^{24} = (0.35)^{24} 8.4 \ hr (2500) = 21,000 \ ufc$

ejercicios

Temperatura medida en $°C$ y $°F$ determinada por la igualdad $9C - 5F + 160 = 0$

a) Expresa en F c/f de c

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

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

b) Expresa en C c/f de F

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

E J E M P L O

38°C

a)
$$F = \frac{9(38)}{5} + 160 \quad +32$$

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

$$F = 68.4 + 32$$

$$F = 100.4°F$$

Para comprobar

b)
$$C = \frac{5(100.4) - 160°}{9}$$

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

$$C = \frac{342}{9} = 138°C$$

ejercicios

→ Convierte de °C a °F ó °F a °C, según corresponde y comprueba

1) 20 °C

$$\frac{9(20)+32}{5}$$

$$\frac{180}{5}+32 = 36+32$$

68 °F

2) 104 °F

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

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

40 °C

3) 110 °F

$$\frac{5(110)-160}{9}$$

$$\frac{700-160}{9} = \frac{540}{9}$$

60 °C

4) 37.2 °C

$$\frac{9(37.2)+32}{5}$$

$$\frac{334.8+32}{5}$$

$$66.96 + 32 = 98.96 °F$$

5) 35.5 °C

$$\frac{9(35.5)+32}{5} = \frac{329+32}{5}$$

95.9 °F

6) 95 °F

$$\frac{5(95)-160}{9} = \frac{475-160}{9}$$

$$315/9 = 35 °C$$

7) -4 °F

$$\frac{5(-4)-160}{9} = \frac{-20-160}{9}$$

$$-180/9 = -20 °C$$

8) -5 °C

$$\frac{9(-5)+32}{5} = \frac{-45+32}{5}$$

$$-9 + 32 = 23 °F$$

COMPROBACIÓN ⟶

1) 20°C = **68°F**

$$\frac{5(68)-160}{9}$$

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

$$180/9 = \boxed{20°c}$$

5) 35.5°C = **95.9°F**

$$\frac{5(95.9°F)-160}{9}$$

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

$$319.5/9 = \boxed{35.5°c}$$

2) 104°F = 40°C

$$\frac{9(40)+32}{5}$$

$$\frac{360+32}{5}$$

$$72+32 = \boxed{104°F}$$

6) 95°F = 35°c

$$\frac{9(35)+32}{5}$$

$$\frac{315+32}{5} = 63+32$$

$$\boxed{95°F}$$

3) 140°F = 60°C

$$\frac{9(60)+32}{5}$$

$$\frac{540+32}{5}$$

$$108+32 = \boxed{140°F}$$

7) -4°F = -20°C

$$\frac{9(-20)+32}{5}$$

$$\frac{-180+32}{5} = -36+32$$

$$\boxed{-4°F}$$

4) 37.2°C = 98.96°F

$$\frac{5(98.96°)-160}{9}$$

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

$$\frac{334.8}{9} = \boxed{37.2°c}$$

8) -5°C = 23°F

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

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

$$\frac{-45}{9} = \boxed{-5°c}$$