Universidad del sureste

Campus Comitán

Licenciatura en Medicina Humana

Actividad: La regla de la Cadena, traza la gráfica, Cultivo MO etc.

Tema: Derivada

Materia: Biomatematicas

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Grado: 2 semestre

Grupo:" B"

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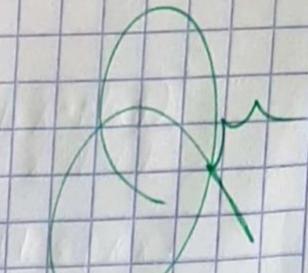
Comitán de Domínguez Chiapas a 2 de Abril del 2022

LA REGLA DE LA CADENA

1) $f(x) = (3x+5)^2 \cdot 9x^2 + 30x + 25$

$f'(x) = 18x + 30$ $\qquad$ $6(3x+5)$

$\qquad\qquad\qquad\qquad\qquad$ $2(9x +$

Fórmulas especiales

1. $A^2 - B^2 = (A-B)(A+B)$
2. $A^2 + 2AB + B^2 = (A+B)^2$
3. $A^2 - 2AB + B^2 = (A-B)^2$
4. $A^3 - B^3 = (A-B)(A^2 + AB + B^2)$
5. $A^3 + B^3 = (A+B)(A^2 - AB + B^2)$
6. $x^2 + 2xy + y^2 = (x+y)^2$
7. $x^2 - 2xy + y^2 = (x-y)^2$
8. $x^n - y^n = (x-y)(x^{n-1} - x^{-2} + \dots + xy + x^{n-1})$

$\qquad$ Si n es impar
$\qquad$ Signo cambia a -

$\qquad$ Si n es par Signo cambia a -

9. $x^2 - (a+b)x + ab = (x-a)(x-b)$

EJERCICIO

1) $F(x) = (3x+5)^3$ $\qquad$ Fórmula: $a^3 + 3a^2b + 3ab^2 + b^3 = (a+b)^3$

$f(x) = 27x^3 + 135x^3 + 225x + 125$ $\qquad$ $(3)(3x+5)(3)$

$\qquad$ $81x^2 + 270x + 225$ $\qquad$ $9(3x+5)^2$

2) $f(x) = (3x+5)^4 = 81x^4 + 540x^3 + 1350x^2 + 1500x + 625$

$F(x) = 4(3x+5)^3 = 12(3x+5)^3$

$\qquad$ $324x^2 + 1626x^2 + 2700x + 500$

3) $F(x) = (3x+5)^5 = 293x^5 + 2025x^4 + 6750x^3 + 11250x^2 + 9375x + 3125$

$F'(x) = 1215x^4 + 8100x^3 + 20250x^2 + 22500x + 9375$

Traza la grafica de las sig. f(x) (cuando f(1) y f(3))

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

P(1,   )   q(3   )

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

2) $f(1) = 3(1) - 2$
   $= 1$ 1, 7 $3(3) - 2$
                             $= 7$

3) $f(1) = 1^2 + 3$
   $= 5$ 5, 12 $3^2 + 3$
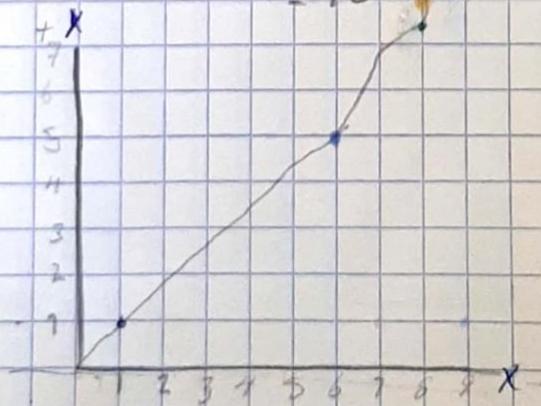 $= 12$

4) $f(1) = 6(1) + 1$
   $= 7$ 7, 19 $6(3) + 1$
                             $= 19$

5) $f(1) = 5(1) - 5$
   $= 0$ 0, 10 $5(3) - 5$
                             $= 10$

Cultivo MO ↑ 85% C/hr entonces f $N(t)$

inicio $N_0 = 2500$

$$N = N_0 (t)^n$$

$N_0^2 + N_0$

$N_0 + 0.60$

1) 3 hrs
2) 4 hrs
3) ↑60% → 7h × 5h
4) ↑20% → 7h × 24h
5) ↑35% → 6h, 12h × 24h

1) 3 hrs

$N(3) = 2500 (1.85)^3 = 15,829.5$

2) 4 hrs

$N(4) = 2500 (1.85)^4 = 29,283.4$

3) ↑60% = 0.6 + $N = 1.6$

$N(7) = 2500 (1.60)^n = 4000$

$N(5) = 2500 (1.60)^3 = 26,214$

4) ↑20% = $N = 0.2 = N = 1.2$ → 7h × 24h

$N(7) = 2500 (1.2)^7 = 3000$

$N(24) = 2500 (1.2)^{24} = 198,742$

5) ↑35% = $N = 0.35 = N = 1.35$ → 6h, 12h × 24h

$N(6) = 2500 (1.35)^6 = 13,133.7$

$N(12) = 2500 (1.35)^{12} = 91,670$

$N(24) = 2500 (1.35)^{24} = 3,356,943.$

Convertir y Comprobar los Siguientes ° dependiendo si
son °C o °F $9C = F_5 + 160 = \aleph$

1) 20°C   5) 33.5°C
2) 104°F   6) 95°F
3) 140°F   7) −4°F
4) 37.2°C   8) −5°C

1 = 20°C

$$F(c) = \frac{9}{5}(20°C) + 32$$

$F(c) = 1.8(20°C) + 32$
$F(c) = 36 + 32$ ✓
$F(c) = 68°F$

Resuelto

3 = 140°F
$$C(F) = \frac{5(F + 160)}{9} = \aleph$$

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

$$C(F) = \frac{700 - 160}{9}$$

$$C(F) = \frac{540}{9} = 60°C$$ ✓

2 = 104°F
$C(F) = \frac{5F - 160}{9} = \aleph$
$F = \frac{9}{9}$

$$C(F) = \frac{5(104°F) + 160}{9}$$

$$C(F) = \frac{520°F - 160}{9} = 40°C$$ ✓

4 = 37.2°C
$$f(c) = \frac{9}{5}(37.2°C) + 32$$

$F(c) = 1.8(37.2°C) + 32$
$F(c) = 66.96 + 32$
$F(c) = 98.96°C$ ✓

5 = 33.5°C
$$F(c) = \frac{9}{5}(33.5°C) + 32$$

$F(c) = 1.8(33.5°C) + 32$
$F(c) = 63.9 + 32$
$F(c) = 95.9°C$ ✓

Resuelto

$6 = 95°F$

$f = \dfrac{5F - 160}{9} = C$

$f = \dfrac{5(95°F) - 160}{9}$

$f = \dfrac{475 - 160}{9}$

$f = \dfrac{315}{9} = 35°C$

$7 = -4°F$

$f = \dfrac{5F - 160}{9}$

Resuelto $f = \dfrac{5(-4°F) - 160}{9}$

$f = \dfrac{-20 - 160}{9}$

$f = \dfrac{-180}{9} = -20°C$

Resuelto

$8 = -5°C$

1 $C(F) = \dfrac{5(-5) - 160}{9} = \dfrac{-25 - 160}{9} = \dfrac{-185}{9} = -20°C$

2. $C(F) = \dfrac{-5(-5) - 160}{9} = \dfrac{25 - 160}{9} = \dfrac{-135}{9} = -15°C$