

Nombre Pendientes Matemáticas Sociales ICurso _____ Letra _____ Número _____ Fecha 6-11-2019

Beatriz Galindo

Materia Solución Extraordinario

$$\textcircled{1} P(\text{ninguna trabajo temporal}) = \frac{4}{10} \cdot \frac{8}{9} \cdot \frac{2}{8} = \frac{1}{30}$$

$$P(\text{alguna}) = 1 - \frac{1}{30} = \frac{29}{30}$$

$$\textcircled{2} N(30, 5)$$

$$\text{a) } P(25 < X < 35) = P\left(\frac{25-30}{5} < Z < \frac{35-30}{5}\right) = P(-1 < Z < 1) = P(Z < 1) - P(Z < -1) \\ = P(Z < 1) - [1 - P(Z < 1)] = 0,8413 - 1 + 0,8413 = 1,6826 - 1 = \underline{0,6826}$$

$$\text{b) } P(Z < Z') \leq 0,8 \rightarrow Z' = 0,845 \quad 0,845 = \frac{X-30}{5} \Rightarrow \\ 4,225 = X - 30 \quad X = 30 + 4,225 = \underline{34,225}$$

$$\textcircled{3} \left. \begin{array}{l} -x+y+3z=-2 \\ 4x+2y-z=5 \\ 2x+4y-7z=1 \end{array} \right\} \left. \begin{array}{l} -x+y+3z=-2 \\ 4x+2y-z=5 \\ 2x+4y-7z=1 \end{array} \right\} \begin{array}{l} F_2+4F_1 \\ F_3+2F_1 \end{array} \quad \left. \begin{array}{l} -x+y+3z=-2 \\ 6y+11z=-3 \\ 6y-z=-3 \end{array} \right\} \begin{array}{l} \\ F_3-F_2 \end{array}$$

$$\left. \begin{array}{l} -x+y+3z=-2 \\ 6y+11z=-3 \\ -12z=0 \end{array} \right\} \begin{array}{l} z=0 \\ y=-1/2 \end{array} \quad \begin{array}{l} -x-1/2=-2 \\ x=3/2 \end{array}$$

$$\textcircled{4}$$

x_i	y_i	x_i^2	y_i^2	$x_i \cdot y_i$
2	70	4	4900	140
4	90	16	8100	360
5	110	25	12100	550
6	150	36	22500	900
7	170	49	28900	1190
9	190	81	36100	1710
10	210	100	44100	2100
43	990	311	156700	6950

$$\bar{x} = \frac{43}{7} = 6,14$$

$$\bar{y} = \frac{990}{7} = 141,43$$

$$\sigma_x = \sqrt{\frac{311}{7} - 6,14^2} = \sqrt{44,43 - 6,14^2} = \sqrt{6,7304} = 2,6$$

$$\sigma_y = \sqrt{\frac{156700}{7} - 141,43^2} = \sqrt{22385,71 - 141,43^2} =$$

$$= \sqrt{2383,2651} = 48,82$$

$$\sigma_{xy} = \frac{6950}{7} - 6,14 \cdot 141,43 = 997,86 - 868,3802 = 124,4798$$

$$r = \frac{\sigma_{xy}}{\sigma_x \cdot \sigma_y} = \frac{124,4798}{2,6 \cdot 48,82} = 0,98$$

5°

$x=1 \quad y = \frac{4}{2} = 2$

$P(1,2)$ de tangente

$y' = \frac{4 \cdot (-2x)}{(x^2+1)^2} = \frac{-8x}{(x^2+1)^2}$

$m = \frac{-8}{4} = -2$

$y-2 = -2(x-1)$

$y = -2x+4$

6°

$f(x) = x^4 - 18x^2 + 17$
Eje Y (0,17)

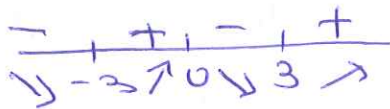
$x^2 = \frac{18 \pm \sqrt{324 - 68}}{2} = \frac{18 \pm 16}{2} \begin{cases} 1 & x = \pm 1 \\ 17 & x = \pm \sqrt{17} \end{cases}$

$(-1,0) \quad (-1,0) \quad (\sqrt{17},0) \quad (-\sqrt{17},0)$

$f'(x) = 4x^3 - 36x$

$4x^3 - 36x = 0$

$4x(x^2 - 9) = 0 \begin{cases} x=0 \\ x=3 \\ x=-3 \end{cases}$



decreciente $(-\infty, -3) \cup (0, 3)$

creciente $(-3, 0) \cup (3, +\infty)$

7°

Los tramos son funciones polinomicas luego de continuidad solo debemos estudiar

$f(x) = \begin{cases} x^2 - 2x & \text{si } x \leq 2 \\ 2x + 1 & \text{si } 2 < x < 4 \\ -x + 13 & \text{si } 4 \leq x \end{cases}$

en $x=2 \quad x=4$

$x=2$ ① $\exists f(2) = 0$

② $\exists \lim_{x \rightarrow 2^-} f(x) = 0$

$\exists \lim_{x \rightarrow 2^+} f(x) = 5$

③ $f(2) = \lim_{x \rightarrow 2^-} f(x) \neq \lim_{x \rightarrow 2^+} f(x)$

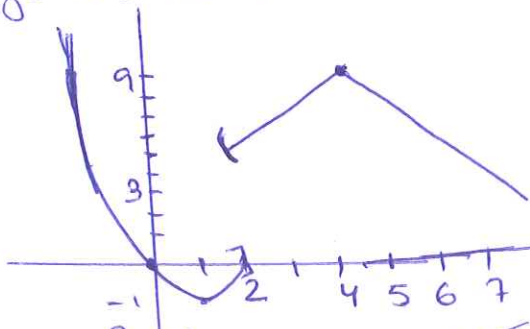
luego $x=2$ no es continua

$x=4$ ① $\exists f(4) = -4 + 13 = 9$

② $\exists \lim_{x \rightarrow 4^-} f(x) = 9$

$\exists \lim_{x \rightarrow 4^+} f(x) = 9$

③ $f(4) = \lim_{x \rightarrow 4^-} f(x) = \lim_{x \rightarrow 4^+} f(x)$
luego en $x=4$ es continua.



8° a)

$\lim_{x \rightarrow 1} \frac{2x^3 + 4x^2 - 7x - 4}{2x^2 + x - 3} = \frac{0}{0} \quad \lim_{x \rightarrow 1} \frac{(x-1)(x+1)(2x+4)}{(x-1)(2x+3)} = \lim_{x \rightarrow 1} \frac{(x+1)(2x+4)}{2x+3} = \frac{2 \cdot 6}{5} = 12/5$

$$\begin{array}{r} 1 \overline{) 2 \quad 1 \quad -3} \\ \underline{2 \quad 3 \quad 0} \end{array}$$

$$\begin{array}{r} 1 \overline{) 2 \quad 4 \quad -2 \quad -4} \\ \underline{2 \quad 4 \quad -2 \quad -4} \\ -1 \overline{) 2 \quad 6 \quad 4 \quad 0} \\ \underline{-2 \quad -6 \quad 4 \quad 0} \\ 2 \quad 4 \quad 0 \end{array}$$

b) $f(x) = x [\ln(x-1)] + 2 \quad f'(x) = \ln(x-1) + x \cdot \frac{1}{x-1} = \ln(x-1) + \frac{x}{x-1}$