



ITSSAT



INSTITUTO TECNOLÓGICO SUPERIOR DE SAN ANDRÉS TUXTLA

Carrera: Ingeniería Informática

Materia: Cálculo Diferencial

Clave: ACF0901

Docente: Erick de Jesús Tellez Vera.

Alumna: Monserrat Pucheta Conchi.

Grupo: 110A

Semestre: 1º

Periodo: Sep 22 - Ene 23

San Andrés Tuxtla, Ver. 29 de Septiembre 2022.

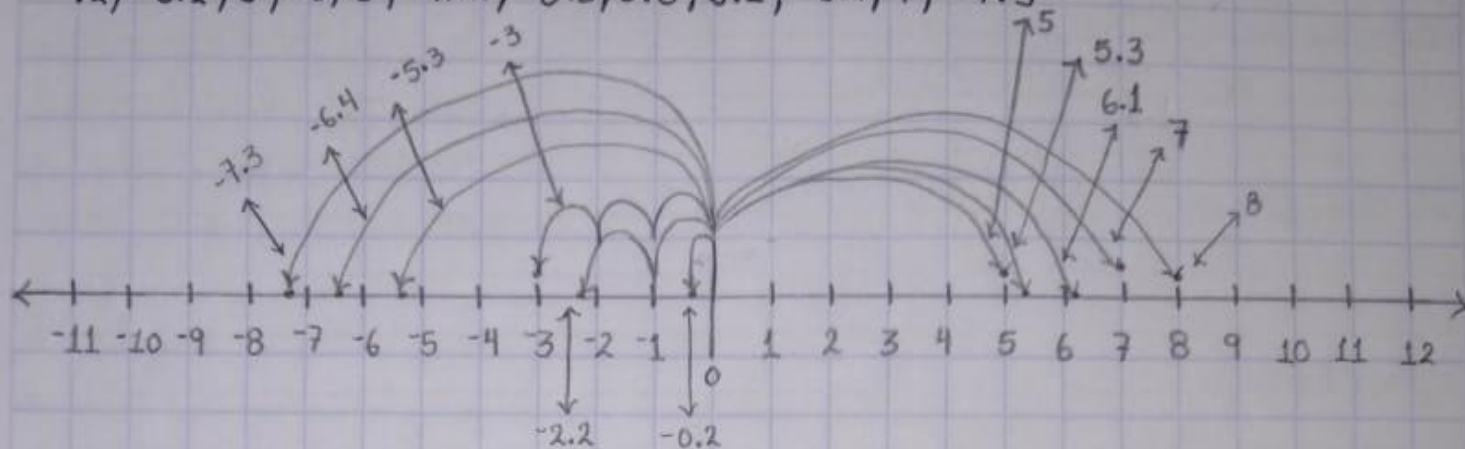
"CÁLCULO DIFERENCIAL"

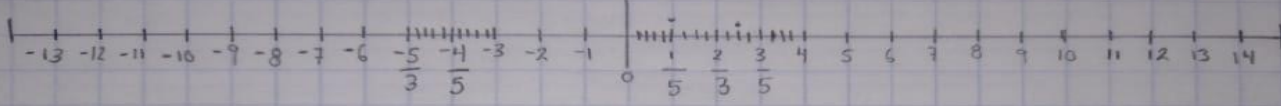
12/09/2022

Actividad # Clase

* Situar los siguientes números en la recta numérica

$-.2, -0.2, 8, -3, 5, -2.2, -5.3, 5.3, 6.1, -6.4, 7, -7.3$

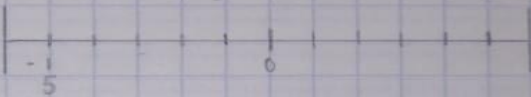




$$* -\frac{1}{5}$$

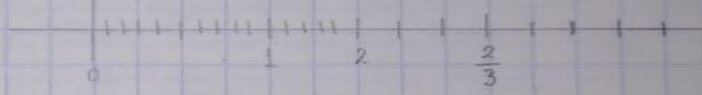
$$* \frac{3}{5}$$

$$* \frac{1}{5}$$



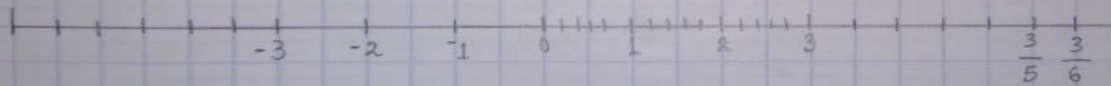
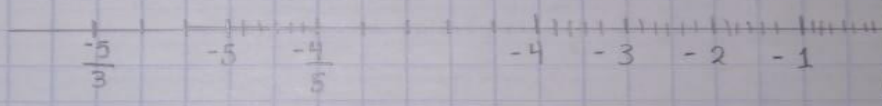
$$* \frac{2}{3}$$

$$* -\frac{5}{3}$$



$$* -\frac{4}{5}$$

$$* \frac{3}{6}$$



- Actividad # Clase

Fecha: 14/09/2022

* Término Algebraico

$$2a + 3a = 5a$$

Coefficiente

$$2a * 3a = 6a^2$$

↓
Sigo $- 5x^2$ Exponen
Literal

$$\frac{3}{5} * \frac{1}{4} = \frac{3}{20}$$

$$\frac{3}{5} + \frac{1}{4} = \frac{12 + 5}{20} = \frac{17}{20}$$

$$\frac{\frac{5}{3}}{\frac{1}{4}} = \frac{20}{3}$$

"Cálculo Diferencial"

19/09/22

#Ejercicio

$$1 - 0 = 1$$

$$1 + 0 = 1$$

$$10 \times 1 = 10$$

$$10 \times \frac{2}{2} = 10 \times 1 = 10$$

* Demostrar Propiedad Asociativa.

$$\frac{3}{4} + \frac{5}{2} + \frac{3}{2} =$$

$$* \left(\frac{3}{4} + \frac{5}{2} \right) + \frac{3}{2} = \frac{13}{4} + \frac{3}{2} = \frac{19}{4}$$

$$* \frac{3}{4} + \left(\frac{5}{2} + \frac{3}{2} \right) = \frac{3}{4} + \left(\frac{16}{2} \right) = \frac{19}{4}$$

$$\frac{104}{20}$$

$$= \frac{30+4+70}{20}$$

$$\frac{7}{2}$$

$$\frac{1}{5}$$

$$\frac{3}{2}$$

$$= \frac{26}{5}$$

$$= \frac{52}{10}$$

* Demostrar Propiedad Distributiva.

$$5(2+3) = 5 \times 2 + 5 \times 3 = 10 + 15 = 25$$

$$a(a^2 + b^2) = a \cdot a^2 + a \cdot b^2 = 2a \cdot a^3 b^2$$

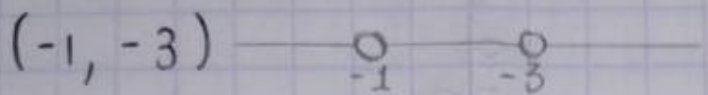
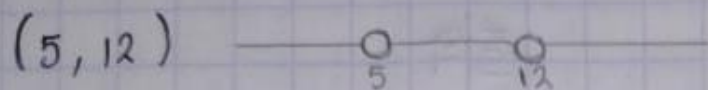
$$3a(x^2 + ab) = 3a^2 x^2 + 3a \cdot ab = 3ax^2 + 3a^2 b = 6a^3 x^2 b$$

* Demostrar Propiedad Conmutativa.

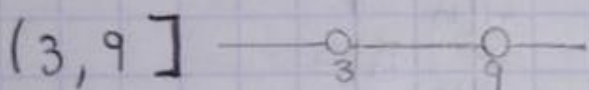
$$\sqrt{x} \cdot \sqrt{x^3} = \sqrt{x^3} \cdot \sqrt{x}$$

$$\frac{1}{y} \cdot \frac{y^2}{y^3} = \frac{\sqrt{y^2}}{\sqrt{y^3}} \cdot \frac{1}{y}$$

* Generar grafica.



$[3, 10]$

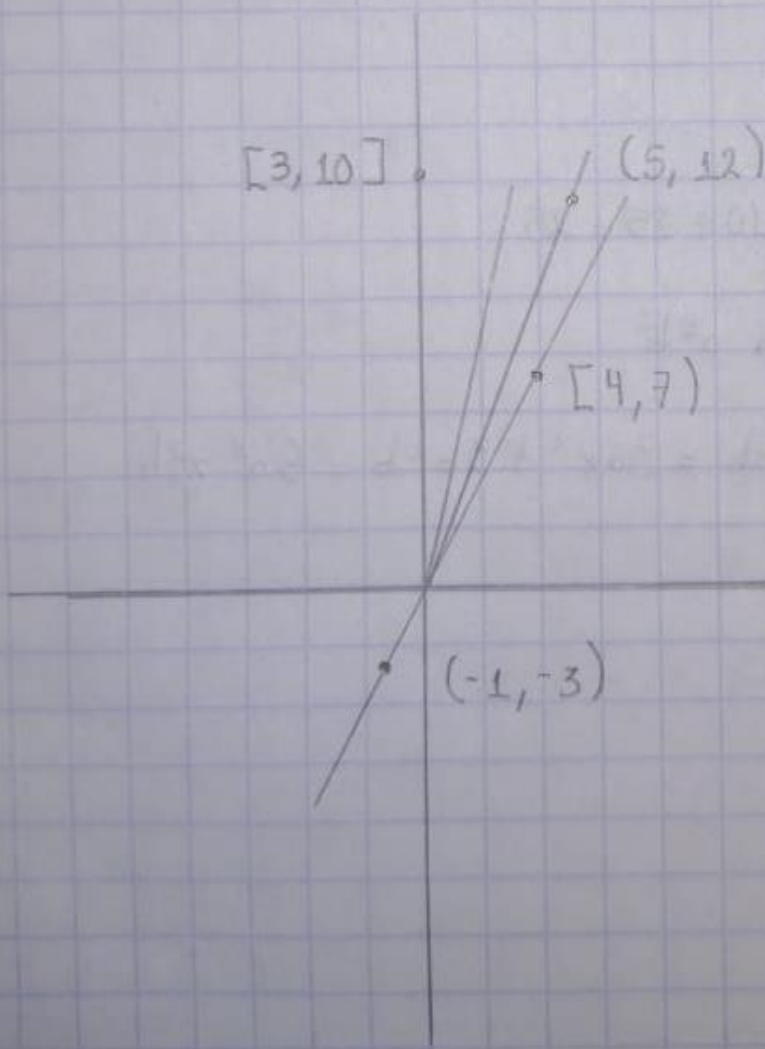


$[3, 10]$

$(5, 12)$

$[4, 7)$

$(-1, -3)$



20/09/22

- Demonstrar:
Comutativa

$$4\frac{1}{2} + 1\frac{6}{7} = \frac{9}{2} + \frac{13}{7} = \frac{63 + 26}{14} = \frac{89}{14}$$

$$1\frac{6}{7} + 4\frac{1}{2} = \frac{13}{7} + \frac{9}{2} = \frac{26 + 63}{14} = \frac{89}{14}$$

$$3\frac{1}{3} + 2\frac{3}{6} = \frac{10}{3} + \frac{15}{6} = \frac{20 + 15}{6} = \frac{35}{6}$$

$$2\frac{3}{6} + 3\frac{1}{3} = \frac{15}{6} + \frac{10}{3} = \frac{15 + 20}{6} = \frac{35}{6}$$

$$6 \div 3 \times 10 = 20$$

$$6 \div 6 \times 15 = 15$$

- Associativa:

$$2\frac{3}{4} + 4 + 2\frac{4}{5} = \left(2\frac{3}{4} + 4\right) + 2\frac{4}{5} = \left(\frac{27}{4}\right) + 2\frac{4}{5}$$

$$2\frac{3}{4} + \left(4 + 2\frac{4}{5}\right) = 2\frac{3}{4} + \left(\frac{34}{5}\right) \left\{ \frac{135 + 56}{20} = \frac{191}{20} \right.$$

$$= \frac{11}{4} + \frac{34}{5} = \frac{55 + 136}{20} = \frac{191}{20}$$

$$3 + 2\frac{6}{7} + 5 =$$

$$\left(3 + 2\frac{6}{7}\right) + 5 = \left(\frac{41}{7}\right) + 5 = \frac{41}{7} + \frac{5 \times 7}{7} = \frac{41 + 35}{7} = \frac{76}{7}$$

- Represente en simbolo y grafica.

$$\left\{ x \in \mathbb{R} \mid -5 < x < 3 \right\}$$

$$\left\{ x \in \mathbb{R} \mid 0 < x \leq 8 \right\}$$

$$\left\{ x \in \mathbb{R} \mid x \leq 9 \right\}$$

$$\left\{ x \in \mathbb{R} \mid 0 \leq x \leq 15 \right\}$$

Expresa como intervalo

1) $\leftarrow \circ (-\infty; 0] \quad \{x \in \mathbb{R} \mid x < 0\}$

2) $\circ -4 \text{ --- } \bullet 6 \quad (-4; 6] \quad \{x \in \mathbb{R} \mid -4 < x \leq 6\}$

$$3) \xrightarrow{0} -2 \rightarrow (2; +\infty) \quad \{x \in \mathbb{R} \mid -2 \leq \infty\}$$

$$4) \xrightarrow{0} \frac{0}{3} \xrightarrow{0} \frac{0}{8} \quad (3; 8) \quad \{x \in \mathbb{R} \mid 3 < x < 8\}$$

Resolver

$$2^3 = 8 = 2 \times 2 \times 2$$

$$(a+t)^{-2} = a t^{-2}$$

$$b^{-2} = b$$

$$5^0 = 1$$

$$\sqrt[3]{ab} = \sqrt{a^x} = a^{\frac{x}{2}} = (ab) = ab^{1/3}$$

$$\frac{a^3}{ab} = a^2 b$$

$$\sqrt[3]{\frac{x}{2}} = \left(\frac{x}{2}\right)^{\frac{1}{3}}$$

$$\left(\frac{5}{6}\right)^{-3} = 30^{-3}$$

$$a^{\frac{1}{2}} \cdot a^{\frac{3}{4}} = 9^{\frac{5}{4}}$$

$$b \cdot 2 = b \cdot b$$

$$(v+t)^{-2} = b^{-n} = \frac{1}{b^n} = -\frac{2}{(v+t)}$$

$$x^m \cdot y^n = x^m y^n$$

"Cálculo Diferencial"

Ejercicio

27/09/22

$$3x + 12 > 0$$

$$3x > -12$$

$$x > -4 \quad (-4, +\infty)$$

$$x > -\frac{12}{3}$$

$$8x - 16 \geq 0$$

$$8x \geq 16$$

$$x \geq +2 \quad [2, +\infty)$$

$$x \geq +\frac{16}{8}$$

$$5x - 10 < 0$$

$$5x < +10$$

$$x < 2 \quad (2, +\infty)$$

$$x < +\frac{10}{5}$$

$$9x \leq -27$$

$$9x \leq +27$$

$$x \leq 3 \quad (+\infty, 3]$$

$$x \leq \frac{+27}{9}$$

$$-6x + 2 \geq 0$$

$$6x - 2 \geq 0$$

$$x \geq 3 \quad [3, +\infty)$$

$$6x \geq 2$$

$$x$$

"Cálculo Diferencial"

28/09/22

Ejercicio

- Resolver, genere intervalo y gráfica

a) $10 - 5x > 0$

$$-5x > -10$$

$$x > \frac{-10}{-5}$$

$$x > 2$$

$$(-\infty, 2)$$

\leftarrow

○
-2

b) $18 - 6x \leq 0$

$$6x \leq -18$$

$$x \leq \frac{-18}{6}$$

$$x \leq -3$$

$$(-\infty, -3]$$

\leftarrow

●
-3

c) $-7x + 28 < 0$

$$7x < -28$$

$$x < \frac{-28}{7}$$

$$x < -4$$

$$(-4, +\infty)$$

○
-4

\rightarrow

d) $3x + 7 > 5 - 2x - 4$

$$x > 1$$

$$3x + 2x > 5 - 4 - 7$$

$$5x > -6$$

$$x > \frac{-6}{5}$$

$$(-\infty, 1)$$

\leftarrow

○
1

e) $12 - 8x - 9 \geq x - 6 - 4x$

$$-8x - 3x \geq -6 - 3$$

$$3 - 8x \geq x - 6 - 4x$$

$$11x \geq 9$$

$$3 - 8x \geq 3x - 6$$

$$x \geq \frac{9}{11}$$

$$\left[\frac{9}{11}, +\infty \right)$$

●
 $\frac{9}{11}$