



UNIVERSIDAD DEL SURESTE
Campus Comitán

Licenciatura de Medicina Humana

TEMA: Poniendo limites

PASIÓN POR EDUCAR

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SEMESTRE: 2°

GRUPO: C

MATERIA: Biomatemáticas

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Matemáticas \rightarrow ciencia que estudia las propiedades de los números.

Ejercicios:

$\lim_{x \rightarrow A} f(x) = C$ \leftarrow fórmula

1) $\lim_{x \rightarrow 2.5} x^2 \rightarrow x^2 = 2.5^2 = (2.5)(2.5) = 6.25$

2) $\lim_{x \rightarrow 1.5} x^2 = 1.5^2 = (1.5)(1.5) = 2.25$

3) $\lim_{x \rightarrow -1} \frac{x^2 - 1}{x - 1} = x^2 - 1 = (-1)(-1) = 1 - 1 = 0$

4) $\lim_{x \rightarrow 3} x^2 = x^2 = (3)(3) = 9$

4 \rightarrow Porcentaje
x \rightarrow PH

Calcular y graficar

1	\rightarrow	$x^2 = 6.6$
2	\rightarrow	$x^3 = 7.6$
3	\rightarrow	$x^3 = 7.8$
4	\rightarrow	$x^4 = 8$

1. $6.6 \rightarrow x^2$

$\text{Lim} = (6.6)(6.6) = 43.56$

2. $7.6 \rightarrow x^3$

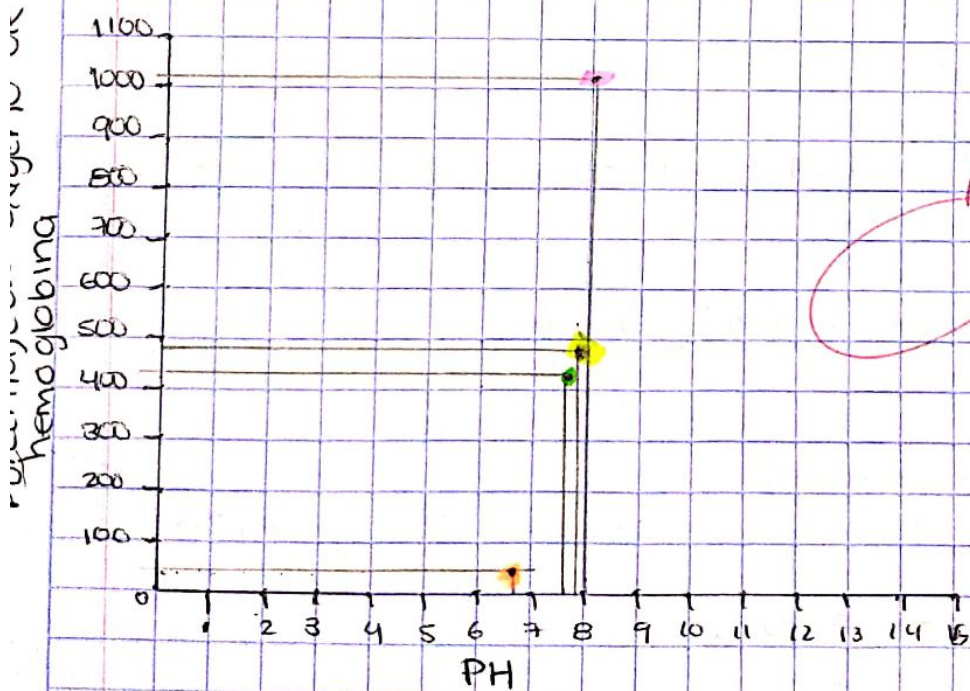
$\text{Lim} = (7.6)(7.6)(7.6) = 438.977$

3. $7.8 \rightarrow x^3$

$\text{Lim} = (7.8)(7.8)(7.8) = 474.552$

4. $8 \rightarrow x^4$

$\text{Lim} = (8)(8)(8)(8) = 4096$



4096	2
2048	2
1024	2
512	2
256	2
128	2
64	2
32	2
16	2
8	2
4	2
2	2

MCM D de 4096 = 2

PH
 8 → 100
 2 → 25%

$$\lim_{x \rightarrow a} c = c$$

$$\lim_{x \rightarrow 3} s = s$$

$$\lim_{x \rightarrow a} x = a$$

$$\lim_{x \rightarrow 3} x = 3$$

$$\lim_{x \rightarrow a} x^n = a^n$$

$$\lim_{x \rightarrow 3} x^2 = 3^2 = 9$$

$$\lim_{x \rightarrow a} \sqrt[n]{x} = \sqrt[n]{a} \quad \lim_{x \rightarrow 2} \sqrt{2}$$

$$\lim_{x \rightarrow 2} 4x^2$$

$$4 \lim_{x \rightarrow 2} x^2 = 4(2)^2 \\ = 4(4) = 16$$

$$\lim_{x \rightarrow 2} 3x^3$$

$$3 \lim_{x \rightarrow 2} x^3 = 3(2)^3 \\ = 3(8) \\ = 24$$

$$\lim_{x \rightarrow 4} 6x^2$$

$$6 \lim_{x \rightarrow 4} x^2 = 6(4)^2 \\ = 6(16) \\ = 96$$

$$\lim_{x \rightarrow a} \sqrt[n]{x} = \sqrt[n]{a}$$

$$\lim_{x \rightarrow 4} \sqrt{x} = \sqrt{4} = 2$$

$$\lim_{x \rightarrow 3} 3x + 4x$$

$$3 \lim_{x \rightarrow 3} x + 4 \lim_{x \rightarrow 3} x$$

$$= 3(3) + 4(3)$$

$$= 9 + 12$$

$$= \underline{21}$$

$$\lim_{x \rightarrow 2} 4x^2 \cdot 3x^2$$

$$4 \lim_{x \rightarrow 2} x^2 \cdot 3 \lim_{x \rightarrow 2} x^2$$

$$= 4(2)^2 \cdot 3(2)^2$$

$$= 4(4) \cdot 3(4)$$

$$= 16 \cdot 12$$

$$= 192$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 2x}{x^3 - 2x} =$$

$$\lim_{x \rightarrow 2} \frac{x^2}{x^3}$$

$$\frac{x^2 \lim_{x \rightarrow 2}}{x^3 \lim_{x \rightarrow 2}}$$

$$\frac{\lim_{x \rightarrow 2} x^2}{\lim_{x \rightarrow 2} x^3}$$

$$= \frac{2}{8}$$

$$= \frac{1}{4}$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 2}{x^3 + 3}$$

$$\frac{-2 \left(\lim_{x \rightarrow 2} x^2 \right)}{3 \left(\lim_{x \rightarrow 2} x^3 \right)}$$

$$= \frac{-2(2)^2}{3(2)^3} = \frac{-2(4)}{3(8)} = \frac{-8}{24} = \frac{1}{3} = -0.333$$

PH 6

PH 9

PH 5.5

↪ Sit 02 Hb?

$$\lim_{x \rightarrow 6} KF(x)$$

$$\lim 6(6)$$

$$\lim = 36$$

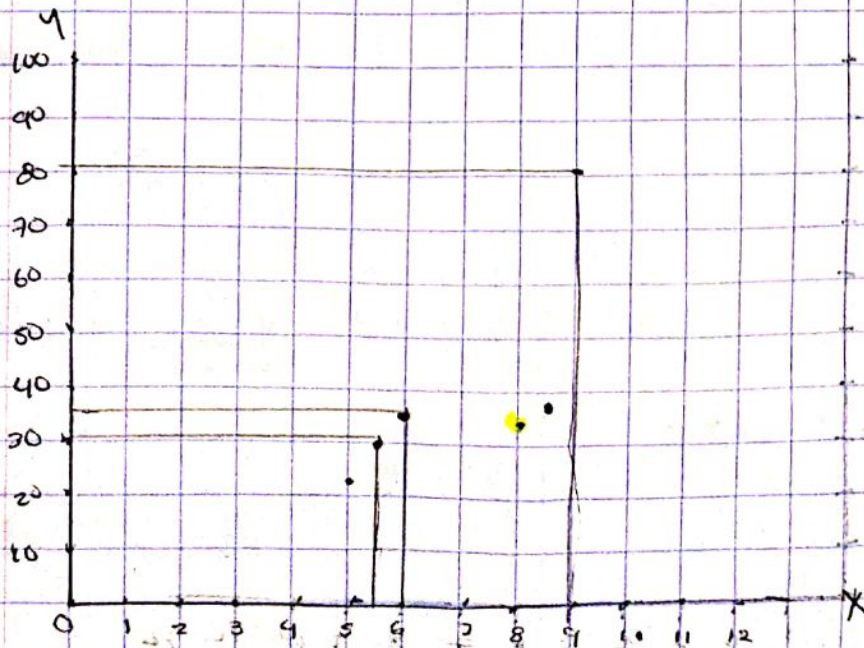
$$\lim_{y \rightarrow 9} KF(x)$$

$$\lim 9(9)$$

$$\lim = 81$$

$$\left. \begin{array}{l} \lim_{x \rightarrow 5.5} KF(x) \\ \lim 5.5(5.5) \\ \lim = 1 \\ 30.25 \end{array} \right\}$$

$$PO^2 (\text{mmHg}) = 80$$



PH

$$PO_2 \text{ (mmHg)} = 80$$

$$\lim_{x \rightarrow 0.6} KF(x) = \lim 6(80) = \lim = 480 =$$

480	2
240	2
120	2
60	2
30	2
15	3
5	5
1	1

$$6 \rightarrow 100\%$$

$$2 \rightarrow 33.33$$

$$\lim KF(x)$$

$$\lim 9(80) = \lim = 720$$

720	2
360	2
180	2
90	2
45	3
15	3
5	5
1	1

$$9 \rightarrow 100\%$$

$$2 \rightarrow 22.22$$

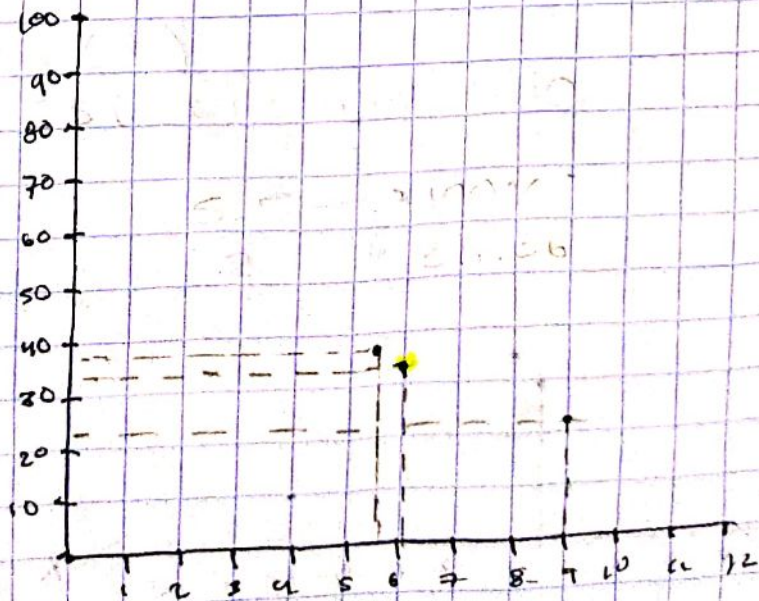
$$\lim KF(x)$$

$$\lim 5.5(180) = \lim = 440$$

$$5.5 \rightarrow 100\%$$

$$2 \rightarrow 36.36$$

440	2
220	2
110	2
55	5
11	11



Tarea.

$$1. \lim_{x \rightarrow 2} \frac{4x + 2x}{3x - 2x}$$

$$\lim \frac{4(2) + 2(2)}{3(2) - 2(2)} = \frac{8 + 4}{8 - 4} = \frac{12}{4} = 3 //$$

$$2. \lim_{x \rightarrow 2} (2x)^3$$

$$\lim (2(2))^3 = 8(8) = 64$$

$$3. \lim_{x \rightarrow 6} \sqrt{2x}$$

$$\lim \sqrt{2(6)} = \sqrt{12} = 2\sqrt{3} \approx 3.464$$

$$4. \lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x - 2}$$

$$\begin{aligned} &+ 4 \left(\lim_{x \rightarrow 2} \frac{x^2 + 5x}{x - 2} \right) = \frac{4(2)^2 + 5(2)}{4(2) - 2} = \frac{16 + 10}{8 - 2} = \frac{26}{6} \\ &- 4 \left(\lim_{x \rightarrow 2} \frac{x^2 + 3x}{x - 2} \right) = \frac{-4(2)^2 + 3(2)}{-4(2) + 2} = \frac{-16 + 6}{-8 + 2} = \frac{-10}{-6} = \frac{10}{6} \\ &= \frac{13}{5} = 2.6 \end{aligned}$$

$$\begin{aligned} 5. \lim_{x \rightarrow 2} \frac{x^2 + 5x + 4}{x^2 + 3x - 4} &= \frac{4 \left(\lim_{x \rightarrow 2} \frac{x^2 + 5x}{x - 2} \right) + 4}{-4 \left(\lim_{x \rightarrow 2} \frac{x^2 + 3x}{x - 2} \right) - 4} = \frac{4(2)^2 + 5(2) + 4}{-4(2)^2 + 3(2) - 4} \\ &= \frac{16 + 10 + 4}{-16 + 6 - 4} = \frac{30}{-14} = -\frac{15}{7} \approx -2.14 \end{aligned}$$

$$\begin{aligned} 6. \lim_{x \rightarrow 2} \frac{x^2 - 4}{2x - 2} &= \frac{-4 \left(\lim_{x \rightarrow 2} \frac{x^2}{x - 2} \right) - 4}{-2 \left(\lim_{x \rightarrow 2} \frac{x^2}{x - 2} \right) - 2} = \frac{-4(2)^2 - 4}{-2(2)^2 - 2} = \frac{-16 - 4}{-8 - 2} = \frac{-20}{-10} = 2 \end{aligned}$$

$$\begin{aligned} 7. \lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^2 - 12x + 20} &= \frac{+6 \left(\lim_{x \rightarrow 2} \frac{x^2 - 5x}{x - 2} \right) + 6}{+20 \left(\lim_{x \rightarrow 2} \frac{x^2 - 12x}{x - 2} \right) + 20} \\ &= \frac{6(2)^2 - 5(2) + 6}{20(2)^2 - 12(2) + 20} = \frac{6(4) - 10 + 6}{80 - 24 + 20} = \frac{14}{76} = \frac{7}{38} \approx 0.184 \end{aligned}$$

$x^2 + bx + c \leftarrow$ TRINOMIO Corrección

$$\lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x - 2} = \frac{(x+3)(x-2)}{x-2} = (x+3) = 2+3 = 5$$

$$\lim_{x \rightarrow 2} \frac{x^2 + 5x + 4}{x^2 + 3x - 4} = \frac{(x+4)(x+1)}{(x+4)(x-1)} = \frac{2+1}{2-1} = \frac{3}{1} = 3$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} = \frac{(x+2)(x-2)}{x-2} = (x+2) = 2+2 = 4$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x^2 - 12x + 20} = \frac{(x-3)(x-2)}{(x-10)(x-2)} = \frac{(x-3)}{(x-10)}$$

$$= \frac{(2-3)}{(2-10)} = \frac{-1}{-8} = 0.125$$

PH 7 ¿Sat D²Hb? $\lim_{x \rightarrow 7} kf(x)$
 PH 7.5 PO² mmHg 35
 PH 8

1. $\lim 35(7) = 245$

245	5
49	7
7	7
1	1

$R = 100\%$
 7 \rightarrow 100%
 7 \rightarrow 100%

2. $\lim 35(7.5) = 262.5$

262	2
131	131

7.5 \rightarrow 100%
 2 \rightarrow 26.66

$R = 26.66\%$

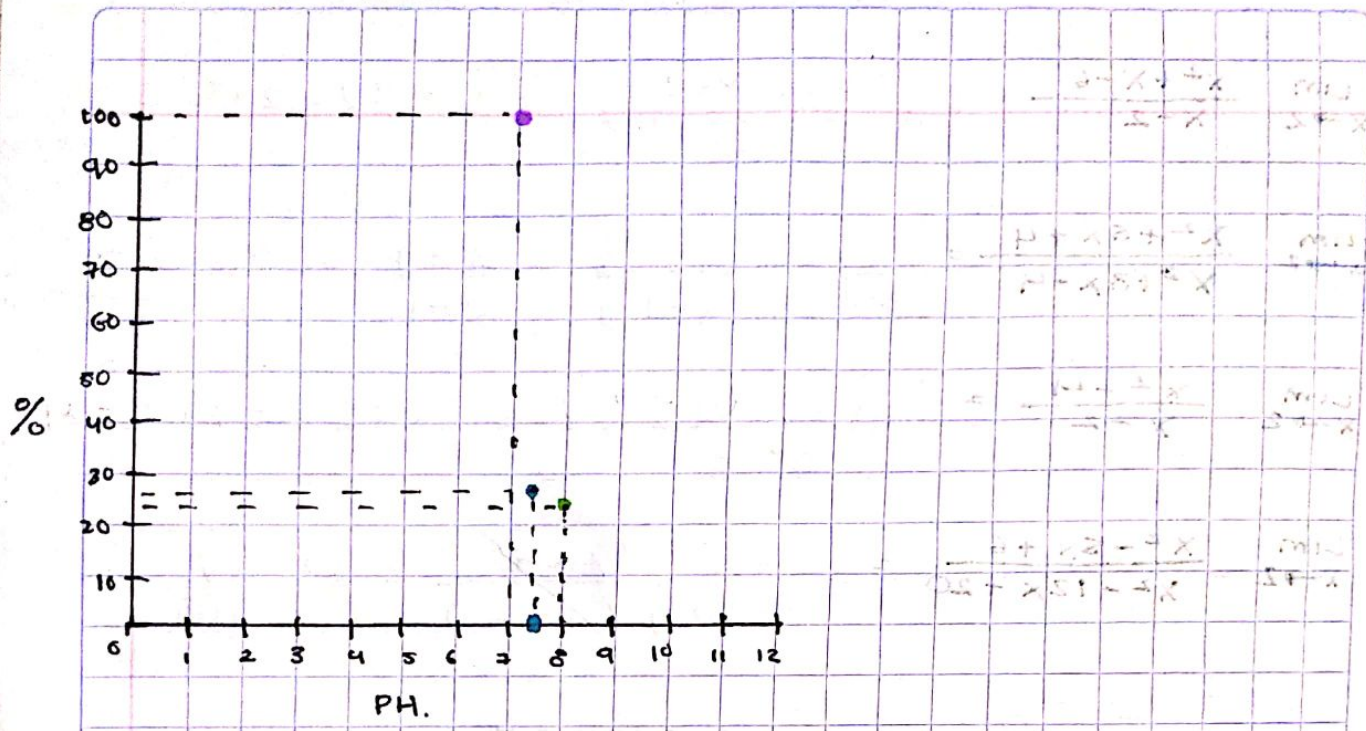
3. $\lim 35(8) = 280$

280	2
140	2
70	2
35	5
7	7
1	7

8 \rightarrow 100%
 2 \rightarrow 25%

$R = 25\%$

(01235710)



Handwritten notes in the middle of the page, including the chemical formula $\text{C}_2\text{H}_5\text{OH}$ and some other illegible scribbles.

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