Nombre del trabajo: Limites unilaterales y propiedades de los limites

Materia: Biomatemáticas

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Grado: 2°

Grupo: C

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Comitán de Domínguez Chiapas a 20 de febrero de 2022.

Limites
(PH)

pH = 6.6

$\lim_{x \to 6.6} x^2$

$\lim x^2 = (6.6)^2 = 43.56$

pH = 7.6

$\lim_{x \to 7.6} x^3$

$\lim x^3 = (7.6)^3 = 438.976$

PH = 7.8

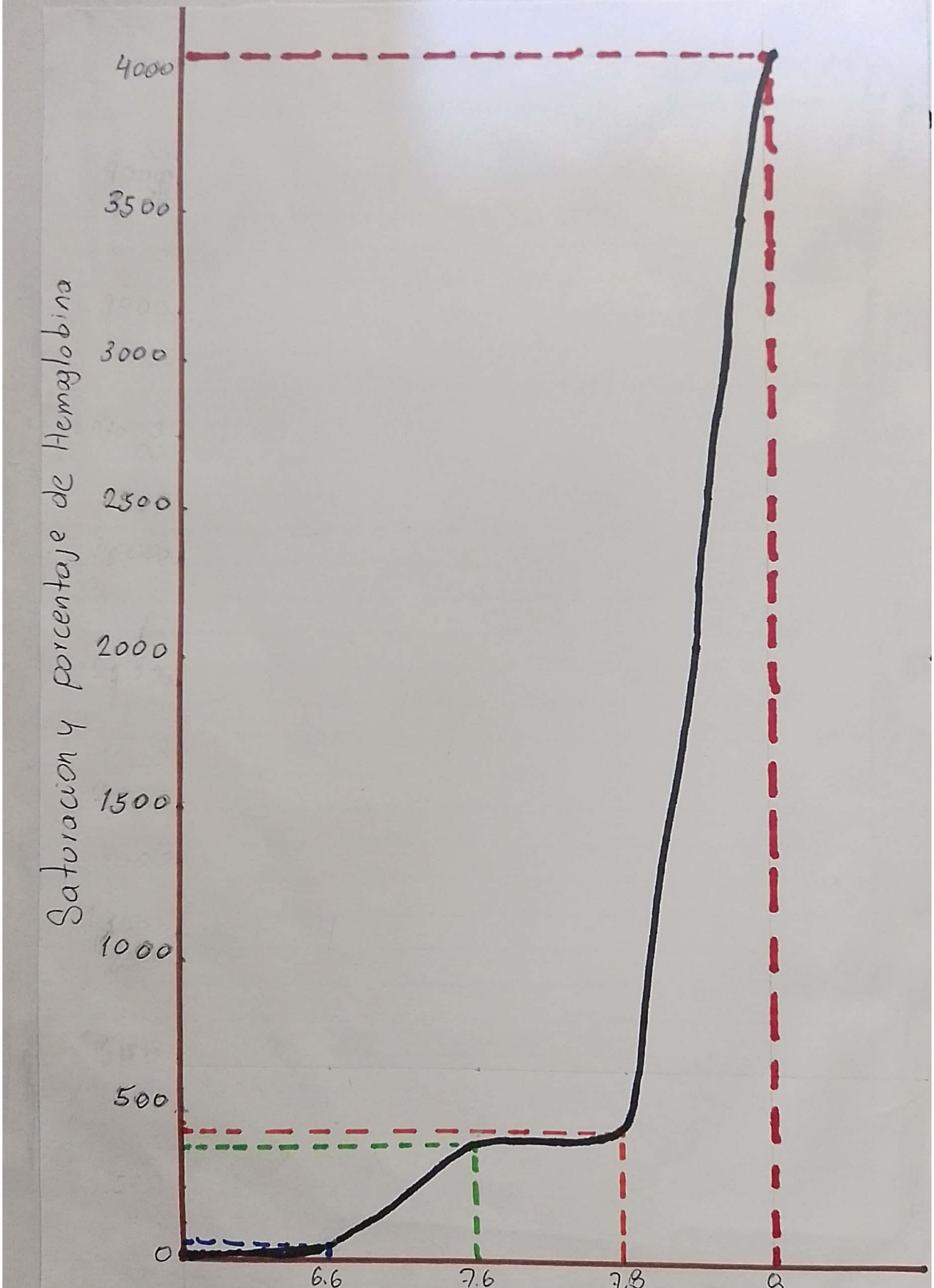
$\lim_{x \to 7.8} x^3$

$\lim x^3 = (7.8)^3 = 474.552$

pH = 8

$\lim_{x \to 8} x^4$

$\lim x^4 = (8)^4 = 4,096$


Saturacion y porcentaje de Hemoglobina
4000
3500
3000
2500
2000
1500
1000
500
0
6.6
7.6
7.8
Q

$\lim x^2 = (2)^2 = 4$

Ejercicios

$\lim_{x \to 2.5} x^2$ $\quad (2.5)^2 = 6.25$

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

$\lim_{x \to 3} x^2$ $\quad (3)^2 = 9$

$\lim_{x \to 1} \frac{x^2 - 1}{x - 1}$ $\quad \frac{(1)^2 - 1}{(1)^2 - 1} = \frac{(1)^1 - 1^0}{(1)^1 - 1^0} = \frac{1-1}{1-1}$

$\frac{(x+1)(x-1)}{(x-1)} = x + 1 = (1+1) = 2$

$\lim_{pH(x) \to 7.2} x^2$ $\quad (7.2)^2 = 51.84$

$\lim_{pH(x) \to 7.4} x^2$ $\quad (7.4)^2 = 54.76$

$\lim_{pH(x) \to 7.6} x^2$ $\quad (7.6)^2 = 57.76$

$pH(x) \to 7.5$ $\quad (7.5)(7.5) = 56.25$

11 02 22

Buscar el MCM o MCD

4096	~~438~~ 2
2048	2
1024	2
512	2
256	2
128	2
64	2
32	2
16	2
8	2
4	2
2	2
1	

4096	2
2048	2

MCD = 2
↓
Número que mas se repite

8 — 100 ~~25~~
2 — x

Ph de 8 saturamos al 25%.

Siempre observar lo que estamos graficando

439	474	2
	237	3
	79	

6

7.8 — 100
6 ⟶ 76.92%

Yo que debemos estar en lo parametros normales, en este caso del 8 ph y el % hb tener un limete de 100% y si un número es mayor a este limite debe ser redondo, en este caso por MCM o MCD. y luego por regla de 3

Redondeo Mayor a .5 = redondo arriba
menor a .5 o sea .5 = redondo abajo.

Federicowán Tarea.

$$\lim_{x \to} \frac{x^2 + x - 6}{x - 2}$$

$$\lim_{x \to 2} \frac{x^2 + 5x + 4}{x^2 + 3x - 4}$$

$$\lim_{x \to 2} \frac{x^2 - 4}{x - 2}$$

$$\lim_{x \to} \frac{x^2 - 5x + 6}{x^2 - 12x + 20}$$

Propiedades de los límites.

1. $\lim_{x \to a} c = c \rightarrow \lim_{x \to 3} 5 = 5$

↓ Porque no hay funciones de x para el cual sustituir

2. $\lim_{x \to a} x = a \rightarrow \lim_{x \to 3} x = 3$

El número que nos dan

3. $\lim_{x \to a} x^n = a^n \rightarrow \lim_{x \to 3} x^2 = 3^2 = 9$

número dado.

Sustitución

número dado

$\lim_{x \to a} \sqrt[n]{x} = \sqrt[n]{a} \rightarrow \lim_{x \to 2} \sqrt[2]{2} = 1.41$

Sustituyo

K = Constante

$\lim_{x \to 2} 4x^2 \quad 4[(2)^2] = 4(4) = 16$

1: $\lim_{x \to a} k[f(x)] = k \lim_{x \to a} f(x) = kL$

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

$\lim_{x \to 4} 6x^2 = 6(4)^2 = 6(16) = 64$

2 $\lim_{x \to a} \sqrt{x} = \sqrt{a}$

$\lim_{x \to 4} \sqrt{x} = \sqrt{(4)} = 2$

Nuestra constante debe ser mayor a cero.

2.1 $\lim_{x \to} f(x) \pm g(x) = \lim_{x \to a} f(x) \pm \lim_{x \to a} g(x) = L \cdot M$

$\lim_{x \to 3} 3x + 4x \quad 3(3) + 4(3) = 9 + 12 = 21$

Respeto la regla de signos.

3. $\lim_{x \to a} f(x) \cdot g(x) = \lim_{x \to a} f(x) \cdot \lim_{x \to a} g(x) = L \cdot M$

$\lim_{x \to 2} 4x^2 \cdot 3x^2 \qquad 4(2)^2 \cdot 3(2)^2 = 16 \cdot 12 = 192$

$f(x) \cdot g(x) = 4 \lim_{x \to 2} x^2 \cdot 3 \lim_{x \to 2} x^2 = 4($

↑ Desglose

4. $\lim_{x \to a} f(x) \div g(x) = \lim_{x \to a} f(x) \div \lim_{x \to a} g(x) = L \div M, M \neq 0$

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

$$\lim_{x \to 2} \frac{x^2}{x^3} = f(x) \div g(x) = \lim_{x \to 2} x^2 \div \lim_{x \to 2} x^3$$

$$= \frac{\lim_{x \to 2} x^2}{\lim_{x \to 2} x^3} = \frac{(2)^2}{(2)^3} = \frac{4}{8} = 2.66$$

- $\lim_{x \to 2} \frac{x^2 - 2}{x^3 + 3} = \frac{-2\left(\lim_{x \to 2} x^2\right)}{3\left(\lim_{x \to 2} x^3\right)}$

$$= \frac{-2(2)^2}{3(2)^3} = \frac{-2(4)}{3(8)} = \frac{8}{24} = -.33$$

5. $\lim_{x \to a} x^n = a^n$

PH 6 ¿Sat O^2 Hb?
PH 9 K-C
PH 5.5

- $\lim_{x \to 6} 6x = 6 \lim_{x \to 6} (6) = 6(6) = \boxed{36}$

Además, es la constante - Cuando no dan constante el PH es.

- $\lim_{x \to 9} 9x = 9 \lim_{x \to 9} (9) = 9(9) = \boxed{81}$

- $\lim_{x \to 5.5} 5.5x = 5.5 \lim_{x \to 0} (5.5) = 5.5(5.5) = \boxed{30.25}$

PO^2 (mmHg) = 80 = Presión de oxigeno

$\lim_{x \to 6} 80x = 80 \lim_{x \to 6} (6) = 80(6) = 480 = 33.33$

$\lim_{x \to 9} 80x = 80 \lim_{x \to 6} (9) = 80(9) = 720 = 22.22$

$\lim_{x \to 5.5} 80x = 80 \lim_{x \to 5.5} (5.5) = 80(5.5) = 440 = 36.36$
$= 36.36$

480	720	440	2
240	360	220	2
120	180	110	2
60	90	55	2
30	45	55	2
15	45	55	

15	45	55	3
5	15	55	3
5	5	55	5
1	1	11	

6 100
2

Factorización

Límites

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

$$= \lim_{x\to 2} x+3 = 2+3 = \boxed{5}$$

suma 5 x da 4

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

$$\lim_{x\to 2} = \frac{(x+4)(x+1)}{(x+4)(x-1)} = \frac{2+1}{2-1} = \frac{3}{1} = \boxed{3}$$

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

① $x^2-4 \overset{①}{=} (x+2)(x-2)$

1 $\sqrt{1}$

x 2

* Cuando queda arriba la fact. no cuenta 1
* Si queda abajo la fact. se cuenta 1

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

$$= \frac{-1}{-8} = \boxed{0.125}$$

Trinomio x^2+bx+c

" ax^2+bx+c

$\lim_{x \to 2} \frac{4x + 2x}{3x + 2x}$ - Factor común - Diferencia de cuadrados

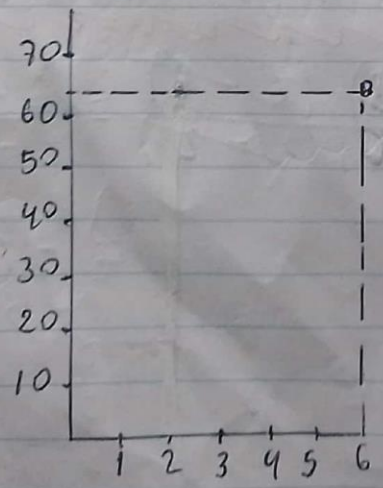
$F(x) \pm g(x) = 4 \lim_{x \to 2} x + 2 \lim_{x \to 2} x = \frac{4(2) + 2(2)}{3(2) - 2(2)} = \frac{12}{2} = 6$

$3 \lim_{x \to 2} x - 2 \lim_{x \to 2} x$

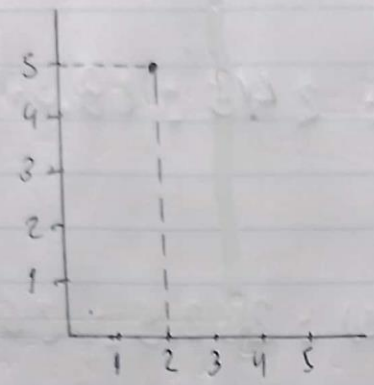
$\lim_{x \to 2} (2x)^3 \quad (2(2))^3 = (4)^3 = 64$

$\lim_{x \to 2} \sqrt{2x} \quad \sqrt{2x} = \sqrt{2(6)} = \sqrt{12} = 3.4641$

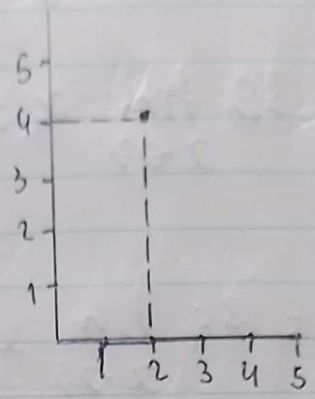
$\lim_{x \to 2} (2x)^3 = 64$



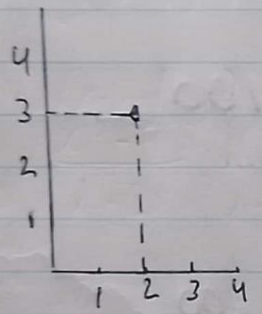
1. $\lim_{x \to 2} \frac{x^2+x-6}{x-2} = 5$



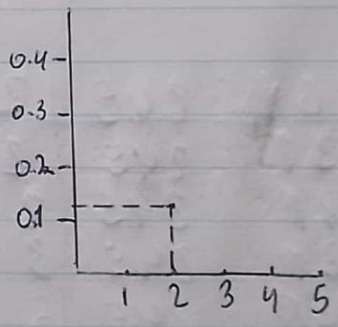
3. $\lim_{x \to 2} \frac{x^2-4}{x-2} = 4$



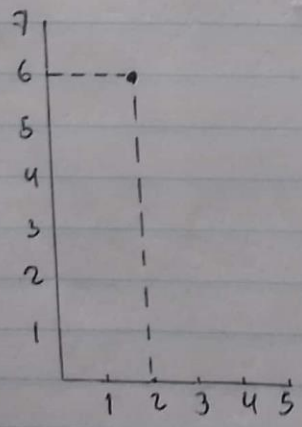
2. $\lim_{x \to 2} \frac{x^2+5x+4}{x^2+3x-4} = 3$



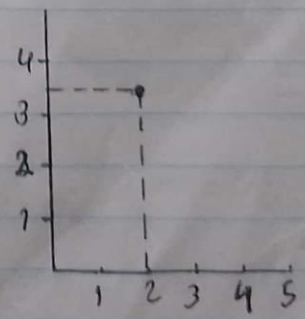
4. $\lim_{x \to 2} \frac{x^2-5x+6}{x^2-12x+20} = 0.125$



1.1 $\frac{4x+2x}{3x-2x} = 6$



2.2 $\lim_{x \to 6} \sqrt{2x} = 3.4641$



pH 7 ¿SO_2 + O^2 Hb?
pH 7.5 pO^2 mmHg^2 35
pH 8

① $\lim_{x \to 7} 35x = 35 \lim_{x \to 7} x = 35(7) = 245 = 28.57$

② $\lim_{x \to 7.5} 35x = 35 \lim_{x \to 7} x = 35(7.5) = 262.5 = 26.66$

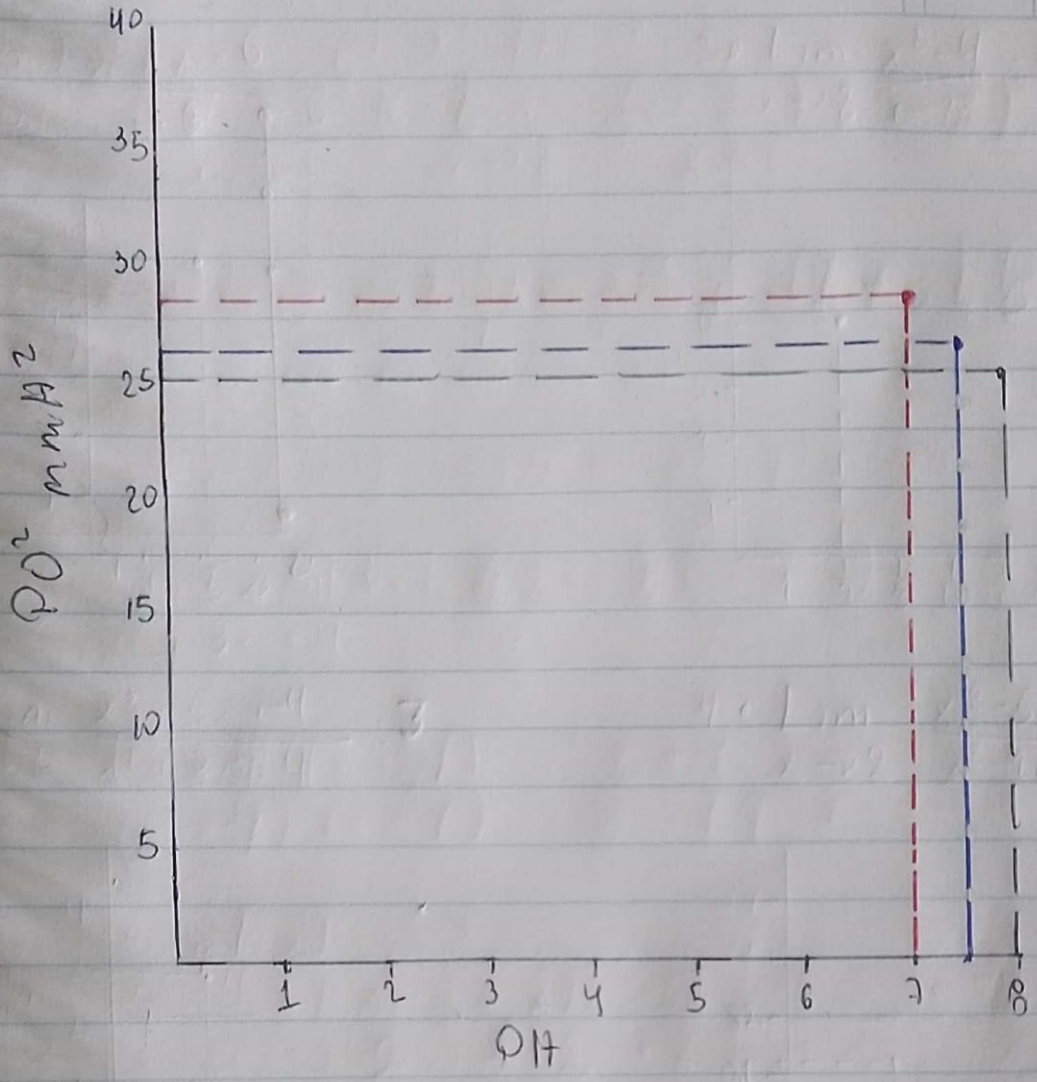
③ $\lim_{x \to 8} 35x = 35 \lim_{x \to 7} x = 35(8) = 280 = 25$

280	262	245	2
140	131	245	2
70	131	245	2
35	131	245	3
35	131	245	3
35	131	245	5
7	131	49	7
1	131	1	

7 — 100
2

7.5 — 100
2 —

8 — 100
2 —


40
35
30
25
20
15
10
5
PO^2 mmHg
1
2
3
4
5
6
7
8
Q17