

SOLUCIONES
LOGARITMOS - II

III - 4 - 1 - Ejercicio 1

| a) | b) | c) | d) | e) |
|----------|---------|---------|----------|-------------------|
| $x = 10$ | $x = 3$ | $x = 8$ | $x = -4$ | $x = \frac{1}{2}$ |

III - 4 - 2 - Ejercicio 2

| a) | b) | c) | d) |
|----------|-----------|-----------|---------|
| $x = -1$ | $x = 100$ | $x = e^2$ | $x = 3$ |

III - 4 - 3 - Ejercicio 3

$$2 \cdot \text{Log}(a) + 3 \cdot \text{Log}(b) - 4 \cdot \text{Log}(c)$$

III - 4 - 4 - Ejercicio 4

$$\frac{3}{2} \cdot \text{Ln}(a) - 2 \cdot \text{Ln}(b) + 4 \cdot \text{Ln}(c)$$

III - 4 - 5 - Ejercicio 5

$$4 \cdot \text{Log}_2(a) + 3 \cdot \text{Log}_2(b) - \frac{2}{5} \cdot \text{Log}_2(c)$$

III - 4 - 6 - Ejercicio 6

$$\text{Log}_2 \left(\frac{5 \cdot 9^{7/3}}{a^3} \right)$$

III - 4 - 7 - Ejercicio 7

$$\text{Log} \left(\frac{m^{1/2} \cdot h^{5/2}}{t^2 \cdot p} \right)$$

III - 4 - 8 - Ejercicio 8

| a) | b) |
|--|--|
| $\text{Log} \left(\sqrt{a} \right)^2 = \text{Log}(a)$ $\text{Log}(a) = \text{Log}(a)$ | $\text{Log}(a^2 - b^2) = \text{Log} \left[ab \cdot \left(\frac{a}{b} - \frac{b}{a} \right) \right]$ $a^2 - b^2 = \frac{ab}{1} \cdot \left(\frac{a}{b} - \frac{b}{a} \right)$ $a^2 - b^2 = \frac{a^2 \cancel{b}}{\cancel{b}} - \frac{\cancel{a} b^2}{\cancel{a}}$ $a^2 - b^2 = a^2 - b^2$ |

III - 4 - 9 - Ejercicio 9

~~$$\text{Log} \left[(a+b) \cdot \left(\frac{a}{b} - 1 \right) \right] = \text{Log} \left[\left(\frac{a}{b} + 1 \right) \cdot (a-b) \right]$$~~

~~$$\frac{a^2}{b} - a + \frac{ab}{b} \cancel{-b} = \frac{a^2}{b} - \frac{ab}{b} + a \cancel{-b}$$~~

~~$$-a + \frac{a \cancel{b}}{\cancel{b}} = -\frac{a \cancel{b}}{\cancel{b}} + a$$~~

~~$$0 = 0$$~~

III - 4 - 10 - Ejercicio 10

| a) | b) | c) | d) | e) | f) | g) | h) |
|----------|----------|----------|---------|-------------------|-------------------|-------------------|---------|
| $x = 10$ | $x = -3$ | $x = -6$ | $x = 2$ | $x = \frac{1}{2}$ | $x = \frac{3}{2}$ | $x = \frac{1}{2}$ | $x = 0$ |

III - 4 - 11 - Ejercicio 11

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

III - 4 - 12 - Ejercicio 12

| a) | b) | c) | d) |
|-------------------|---------|---------|--------------------|
| $x = \frac{1}{2}$ | $x = 4$ | $x = 5$ | $x = \frac{1}{16}$ |

III - 4 - 13 - Ejercicio 13

| a) | b) | c) | d) |
|-------------------------------|------------------------|---|--|
| $x = \frac{2}{\text{Log}(3)}$ | $x = \pm \frac{1}{10}$ | $x = \frac{\text{Log}(115)}{\text{Log}(7)}$ | $x = -\frac{\text{Log}(3)}{\text{Log}(5)}$ |

III - 4 - 14 - Ejercicio 14

| a) | b) | c) | d) |
|---------|---------|-------------------|---------|
| $x = 5$ | $x = 3$ | $x = \frac{1}{2}$ | $x = 3$ |

III - 4 - 15 - Ejercicio 15

$$\text{Log}(x) + \frac{3}{2} \cdot \text{Log}(y)$$

$$0'2345 + \frac{3}{2} \cdot 0'3456 \rightarrow 0'7529$$

III - 4 - 16 - Ejercicio 16

| | |
|---------|----------|
| a) | b) |
| $a = 2$ | $a = 32$ |

III - 4 - 17 - Ejercicio 17

| | |
|----------|--------------------|
| a) | b) |
| $x = -3$ | $x = -\frac{3}{2}$ |

III - 4 - 18 - Ejercicio 18

| | | |
|---------------------------------|---|---|
| a) | b) | c) |
| $\text{Log}(2) + \text{Log}(3)$ | $4 \cdot \text{Log}(2) + 2 \cdot \text{Log}(3)$ | $3 \cdot \text{Log}(2) - 4 \cdot \text{Log}(3)$ |

III - 4 - 19 - Ejercicio 19

| | | | |
|-------------------------|----------------------------------|-------------------------|--|
| a) | b) | c) | d) |
| $3 \cdot \text{Log}(2)$ | $\text{Log}(10) - \text{Log}(2)$ | $3 \cdot \text{Log}(5)$ | $6 \cdot \text{Log}(2) - 2 \cdot \text{Log}(10)$ |

III - 4 - 21 - Ejercicio 20

-8

III - 4 - 29 - Ejercicio 21

$$y = \frac{x \cdot \text{Log}(a)}{\text{Log}(b)}$$

III - 4 - 22 - Ejercicio 22

| |
|---|
| a) $\text{Log}(3) + \text{Log}(10)$ |
| b) $\text{Log}(3) + \text{Log}(100)$ |
| c) $\text{Log}(3) + \text{Log}(1.000)$ |
| d) $\text{Log}(3) + \text{Log}(10^{-1})$ |
| e) $\text{Log}(3) - \text{Log}(100)$ |
| f) $\text{Log}(3) - \text{Log}(1.000)$ |
| g) $2 \cdot \text{Log}(3) - \text{Log}(10)$ |

III - 4 - 23 - Ejercicio 23

| | | | |
|-----------|-----------|-----------|--|
| a) | b) | c) | d) |
| 12,4 | 27,8 | -4,8 | $(14,4)^{1/2} \rightarrow \sqrt{14,4}$ |

III - 4 - 24 - Ejercicio 24

$$\text{Log}\left(\frac{1}{a}\right) + \text{Log}(\sqrt{a}) = -\frac{1}{6} \cdot \text{Log}(a^3)$$

$$\text{Log}\left(\frac{1}{a} \cdot \sqrt{a}\right) = -\frac{1}{6} \cdot \text{Log}(a^3)$$

$$\cancel{\text{Log}}\left(\frac{1}{a} \cdot \sqrt{a}\right) = \cancel{\text{Log}}(a^3)^{-1/6}$$

$$\frac{\sqrt{a}}{a} = a^{-3/6}$$

$$\frac{\sqrt{a}}{a} = a^{-1/2}$$

$$\sqrt{a} = a^{-1/2} \cdot a^1$$

$$\sqrt{a} = a^{1/2}$$

$$\left(\cancel{\sqrt{a}}\right)^2 = \left(a^{1/2}\right)^2$$

$$a = a$$

III - 4 - 25 - Ejercicio 25

$$\frac{3 \cdot \text{Log}(2) + \text{Log}(3) - \text{Log}(10) + \text{Log}(2)}{2 \cdot \text{Log}(2) + 2 \cdot \text{Log}(3) - \text{Log}(10)}$$

III - 4 - 26 - Ejercicio 26

$$\frac{4 \cdot \text{Log}(3) + 3 \cdot \text{Log}(5) - 3 \cdot \text{Log}(10) - 5 \cdot \text{Log}(2)}{\frac{1}{2} \cdot \text{Log}(3) + \frac{3}{2} \cdot \text{Log}(2)}$$

III - 4 - 27 - Ejercicio 27

$$\frac{\text{Log}(2) + 3 \cdot \text{Log}(3) - 1 \cdot \text{Log}(10) + \text{Log}(5)}{\frac{1}{2} \cdot \text{Log}(3)}$$

III - 4 - 28 - Ejercicio 28

$$\frac{\text{Log}(5) + \frac{3}{2} \cdot \text{Log}(3) - \frac{1}{2} \cdot \text{Log}(10) - 6 \cdot \text{Log}(2)}{2 \cdot \text{Log}(2) + 2 \cdot \text{Log}(3) - 1 \cdot \text{Log}(10)}$$

III - 4 - 30 - Ejercicio 29

$$x = \text{Log}_{24}(3)$$

II - 3 - 58 - Ejercicio 30

$$x = -3$$