



MATEMÁTICA

1ª SÉRIE
Prof. Luan

Lista:

Data: 17 / 09 / 2020

Aluno (a):

Nº

ATIVIDADE:

Resolução comentada – Lista 04

24.

a)

$$2^x = 32$$

$$2^x = 2^5$$

$$x = 5$$

b)

$$3^{x+3} - \frac{1}{27} = 0$$

$$3^{x+3} = \frac{1}{27}$$

$$3^{x+3} = \frac{1}{3^3}$$

$$3^{x+3} = 3^{-3}$$

$$x + 3 = -3$$

$$x = -6$$

c)

$$5^{3x-1} = 25^x$$

$$5^{3x-1} = (5^2)^x$$

$$5^{3x-1} = 5^{2x}$$

$$3x - 1 = 2x$$

$$3x - 2x = 1$$

$$x = 1$$

e)

$$27^{x-3} = \sqrt[3]{9}$$

$$(3^3)^{x-3} = \sqrt[3]{3^2}$$

$$3^{3(x-3)} = 3^{\frac{2}{3}}$$

$$3x - 9 = \frac{2}{3}$$

$$3x = 9 + \frac{2}{3}$$

$$3x = \frac{27+2}{3}$$

$$3x = \frac{29}{3}$$

$$9x = 29$$

$$x = \frac{29}{9}$$

f)

$$\sqrt{2^{2x-1}} = 0,5$$

$$\sqrt[2]{2^{2x-1}} = 0,5$$

$$2^{\frac{2x-1}{2}} = \frac{1}{2}$$

$$2^{\frac{2x-1}{2}} = 2^{-1}$$

$$\frac{2x-1}{2} = -1$$

$$2x-1 = -2$$

$$2x = -1$$

$$x = -\frac{1}{2}$$

25.

a)

$$2^x + 2^{x+1} + 2^{x+2} = 7$$

$$2^x + 2^x \cdot 2^1 + 2^x \cdot 2^2 = 7$$

$$2^x + 2^x \cdot 2 + 2^x \cdot 4 = 7$$

Fazendo a mudança de variável $2^x = y$, temos

$$y + y \cdot 2 + y \cdot 4 = 7$$

$$7y = 7$$

$$y = 1$$

$$2^x = 1$$

$$2^x = 2^0$$

$$x = 0$$

35. $P = a \cdot 2^{kt+1}$

Para $t = 0$ min, temos $P = 120$:

$$120 = a \cdot 2^{k \cdot 0 + 1} \Rightarrow 120 = a \cdot 2^1 \Rightarrow a = 60.$$

Para $t = 10$ min, temos $P = 3\,840$:

$$3\,840 = 60 \cdot 2^{k \cdot 10 + 1} \Rightarrow \frac{3\,840}{60} = 2^{k \cdot 10 + 1} \Rightarrow 64 = 2^{10k + 1} \Rightarrow 2^6 = 2^{10k + 1} \Rightarrow 10k + 1 = 6 \Rightarrow 10k = 5 \Rightarrow k = 0,5.$$