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Curso: Análise e desenvolvimento de Sistemas

*Feminina*

TRABALHO

1)  $2^{x-5} = 128$   
 $2^{x-5} = 2^7 \Rightarrow x-5 = 7 \Rightarrow x = 12$

2)  $3^{\frac{x}{3}} = 243$   
 $3^{\frac{x}{3}} = 3^5 \Rightarrow \frac{x}{3} = 5 \Rightarrow x = 15$

3)  $2^{3x-1} = \frac{1}{16}$   
 $2^{3x-1} = 2^{-4} \Rightarrow 3x-1 = -4 \Rightarrow 3x = -3 \Rightarrow x = -1$

4)  $(\frac{1}{5})^{x+1} = 125$   
 $(5^{-1})^{x+1} = 5^3 \Rightarrow -x-1 = 3 \Rightarrow -x = 4 \Rightarrow x = -4$

5)  $100^x = 0.001$   
 $(10^2)^x = 10^{-3} \Rightarrow 2x = -3 \Rightarrow x = -\frac{3}{2}$

6)  $4^{x-1} = \frac{1}{8}$   
 $(2^2)^{x-1} = 2^{-3} \Rightarrow 2x-2 = -3 \Rightarrow 2x = -1 \Rightarrow x = -\frac{1}{2}$

7)  $9^x = 27$   
 $(3^2)^x = 3^3 \Rightarrow 2x = 3 \Rightarrow x = \frac{3}{2}$

8)  $(\frac{2}{3})^x = 27$   
 $(\frac{2}{3})^x = \frac{27}{100} \Rightarrow (\frac{2}{3})^x = (\frac{2}{3})^{-2} \Rightarrow x = -2$

9)  $(\sqrt{3})^x = \sqrt[3]{9}$   
 $3^{\frac{x}{2}} = 3^{\frac{2}{3}} \Rightarrow \frac{x}{2} = \frac{2}{3} \Rightarrow x = \frac{4}{3}$

10)  $(\sqrt[3]{2})^x = 8$   
 $2^{\frac{x}{3}} = 2^3 \Rightarrow \frac{x}{3} = 3 \Rightarrow x = 9$

11)  $25^{x-6} = 0.2$   
 $(5^2)^{x-6} = 5^{-1} \Rightarrow 2x-12 = -1 \Rightarrow 2x = 11 \Rightarrow x = \frac{11}{2}$

12)  $2 \cdot 2^x = (\frac{1}{6})^{x+2}$   
 $(2^3)^{x+2} = (3^{-1})^{x+2} \Rightarrow 3 \cdot 2x = -x-2 \Rightarrow 6x+2x = -4 \Rightarrow 8x = -4 \Rightarrow x = -\frac{1}{2}$

13)  $\frac{1}{5} = 25^x$   
 $5^{-1} = (5^2)^x \Rightarrow -1 = 2x \Rightarrow x = -\frac{1}{2}$

14)  $(\frac{2}{3})^x = \frac{27}{8}$   
 $(\frac{2}{3})^x = (\frac{3}{2})^3 \Rightarrow (\frac{2}{3})^x = (\frac{2}{3})^{-3} \Rightarrow x = -3$

15)  $(\frac{1}{2})^{x+1} = 2^{2x+1}$   
 $(2^{-1})^{x+1} = 2^{2x+1} \Rightarrow -x-1 = 2x+1 \Rightarrow -3x = 2 \Rightarrow x = -\frac{2}{3}$

16)  $2^{x-1} + 2^{x+2} = 36$   
 $(1+2^3) \cdot 2^{x-1} = 36 \Rightarrow 9 \cdot 2^{x-1} = 36 \Rightarrow 2^{x-1} = 4 \Rightarrow x-1 = 2 \Rightarrow x = 3$

17)  $3^{x+1} + 3^{x+2} = 12$   
 $(1+3) \cdot 3^{x+1} = 12 \Rightarrow 4 \cdot 3^{x+1} = 12 \Rightarrow 3^{x+1} = 3 \Rightarrow x+1 = 1 \Rightarrow x = 0$

*spiral*

$$38) 4^{x+2} + 4^{x+5} = 65$$

$$(1+4^3) \cdot 4^{x+2} = 65 \quad \rightarrow \quad 65 \cdot 4^{x+2} = 65 \quad \rightarrow \quad 4^{x+2} = 1 \quad \rightarrow \quad x+2 = 0$$

$$(1+64) \cdot 4^{x+2} = 65 \quad \rightarrow \quad 4^{x+2} = \frac{65}{65} \quad \rightarrow \quad 4^{x+2} = 4^0 \quad \rightarrow \quad x = -2$$