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matemática

Regras de Potência

Tarefa Básica

① Sabendo que

$$\left[\left(\frac{5}{3} \right)^2 \cdot 3^{52} \right] : \left(\frac{3}{3} \right)^2 = 3^a$$
$$\left[3^{10} \cdot 3^{52} \right] : 3^6 = 3^a$$
$$3^{62} : 3^6 = 3^a$$
$$3^{56} = 3^a$$

$$E: a = 56$$

② $[2^9 : (2^2 \cdot 2)^3]^{-3}$ obtém

$$D = 1$$

$$[512 : (4 \cdot 2)^3]^{-3}$$

$$[512 : 8^3]^{-3}$$

$$[512 : 512]^{-3}$$

$$[1]^{-3} = 1$$

③ $a = 1000$, $b = 100$ e $x = 0,4$
 expressão ab^x $C = 10^{3,8}$

$$\begin{aligned} (1000 \cdot 100)^{0,4} \\ 10^3 \cdot 10^2)^{0,4} \\ 10^5 \cdot (10^2)^{0,4} \\ 10^5 \cdot 10^{0,8} \\ 10^{5,8} \end{aligned}$$

④ A metade de 4^{22} é $E = 2^{43}$

$$\frac{4^{22}}{2} = \frac{(2^2)^{22}}{2} = 2^{44} - 1 = 2^{43}$$

⑤ Calculando:

$$\frac{(0,1) \cdot (0,001) \cdot 10^{-1}}{10 \cdot (0,0001)}$$

$B = 10^{-2}$

$$10^{-1} \cdot 10^{-3} \cdot 10^{-1} = 10^{-5}$$

$$10 \cdot 10^{-1} = 10^{-2} \quad (5 \cdot 10)$$

$$\frac{(10^{-5})}{10^{-3}} = 10^{-2}$$

⑥ Efetuando a derivada e^x : e^{x-2} derivada:
 $C = e^2$

$$E^x: E^{x-2}$$

$$E^x = (x-2)$$

$$E^x = x-2$$

$$E^x$$

⑦ Se $7^{5y} = 243$ o valor de $7^{-y} e^{-}$

$$7^{5y} = 243$$

$$7^{5y} = 3^5$$

$$(7^{5y})^{\frac{1}{5}} = 3$$

$$7^y = 3$$

$$7^{-y} = \frac{1}{3}$$

$$A = \frac{1}{3}$$

⑧ $5^x = m$ e $5^y = n$, $(0,04)^{-x+2y}$ vale:

$$E = m^2 \cdot n^{-4}$$

$$5^x = m \Rightarrow x = \log_5 m$$

$$5^y = n \Rightarrow y = \log_5 n$$

$$\left(\frac{1}{100}\right)^{-x+2y} = \frac{1}{25} \cdot \frac{1}{3} = \frac{1}{75}$$

$$\left(\frac{1}{100}\right)^{-x+2y} = \frac{1}{25} \cdot \frac{1}{3} = \frac{1}{75}$$

$$\left(\frac{1}{100}\right)^{-x+2y} = \frac{1}{25} \cdot \frac{1}{3} = \frac{1}{75}$$

$$5^{2x-4y} = 5^{2x} \cdot 5^{-4y}$$

$$(5^x)^2 = (5^y)^4 = m^2 \cdot n^{-4}$$

⑨ Se x e y são números reais, então

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

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