

28.08.21

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Turma: 171

Caixa Básica

01) Efetuar

$$a) (-3)^4 = (-3), \underbrace{(-3)}, \underbrace{(-3)}, \underbrace{(-3)} = 81 \quad R = 81$$

$$b) 0,5^3 = \underbrace{0,5}, \underbrace{0,5}, \underbrace{0,5} = 0,125 \quad R = 0,125$$

$$c) 15^1 = 15 \quad R = 15$$

$$d) 1^{-3} = 1 \quad R = 1$$

$$e) 0^{20} = 0 \quad R = 0$$

$$f) 172^1 = 172 \quad R = 172$$

$$g) 1^{422} = 1 \quad R = 1$$

$$h) 99^0 = 1 \quad R = 1$$

2) (UNICAMP)

a) Calcule as seguintes potências:

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$$a = 3^3, b = (-2)^3, c = 3^{-2} \text{ e } d = (-2)^{-3}$$

$$3 \times 3 = 27 \quad -8 \quad \frac{1}{3^2} = \frac{1}{9} \quad (-2)^3 = -\frac{1}{8}$$

$$a = 27, b = -8, c = \frac{1}{9} \text{ e } d = -\frac{1}{8}$$

$$R = a = 27, b = -8, c = \frac{1}{9} \text{ e } d = -\frac{1}{8}$$

Se) Encresco os números a, b, c e d de ordem crescente.

$$R = -8, -\frac{1}{8}, \frac{1}{9}, 27: b, d, c \text{ e } a$$

3) (FUVEST) Qual desses números é igual a 0,064?

$$a) \left(\frac{1}{80}\right)^2 \quad b) \left(\frac{1}{8}\right)^2 \quad c) \left(\frac{2}{5}\right)^3 \quad d) \left(\frac{1}{800}\right)^2 \quad e) \left(\frac{8}{50}\right)^3$$

$$\frac{2}{5} = 0,9 \cdot 0,9 \cdot 0,9 = 0,64$$

$$R = \text{Letra C.}$$

4) O valor da expressão $5^{-1} - \frac{1}{5}$ é:

$$\frac{1}{5} - \frac{1}{5} = \frac{2-5}{10} = \frac{-3}{10} = -0,3$$

$$R = B$$

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5) Completar o expoente da potência de base 10.

a) $241 = 0,291 \cdot 10^3$

$10^3 = 1000$

$R = 3$

$0,291 \cdot 1000 = 291$

b) $241 = 2,91 \cdot 10^2$

$10 \cdot 10 = 100 \cdot 2,91 = 2,91 \quad R = 2$

c) $241 = 24,1 \cdot 10^1$

$10 \cdot 24,1 = 241$

$R = 1$

d) $10,291 = 2,91 \cdot 10^{-1}$

$\frac{2,91}{10} = 0,291$

$\frac{1}{10} = 10^{-1} = 10$

$0,0291 \cdot 10 = 0,291$

$R = -1$

e) $10,291 = 24,1 \cdot 10^{-2}$

$\frac{24,1}{100} = 0,241$

$\frac{1}{100} = 10^{-2} = 100$

$R = -2$

f) $10,291 = 291 \cdot 10$

$291 \cdot 10^3$

$\frac{1}{10} = 10^3$

$1000 \cdot 0,291 = 291$

$\frac{1}{1000} = 0,291$

$R = -3$

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$$g) 0,000241 = 2,41 \cdot 10^{-5}$$

$$\frac{1}{10} = 10000 \quad \frac{2,41}{100000} = 0,000241$$

R=4

$$h) 0,000241 = 2,41 \cdot 10^{-5}$$

$$\frac{1}{10} = 100000 \quad \frac{2,41}{1000000} = 0,000241$$

R=5

$$i) 0,003912 = 3,912 \cdot 10^{-3}$$

$$\frac{1}{10} = 1000 \quad \frac{3,912}{1000} = 0,003912$$

R=-3

6) (MACK) O valor de $2x^0 + x^{3/4} + 18x^{-1/2}$, quando $x = 81$, é

- a) 30
- b) 31
- c) 35
- d) 36
- e) 38

R=B

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$$2x^0 + x^{3/4} + 18^{-1/2} \text{ donde } x = 81$$

$$2(81)^0 + (81)^{\frac{3}{4}} + 18(81)^{-\frac{1}{2}}$$

$$2 \cdot 1 + (3^4)^{\frac{3}{4}} + 18 \cdot (3^4)^{-\frac{1}{2}}$$

$$2 \cdot 1 + (3^{\frac{4}{1} \cdot \frac{3}{4}}) + 18 \cdot (3^{\frac{4}{1} \cdot \frac{1}{2}})$$

$$2 \cdot 1 + (3^{\frac{12}{4}}) + 18 \cdot (3^{\frac{4}{2}})$$

$$2 \cdot 1 + 3^3 + 18 \cdot 3^0$$

$$2 \cdot 1 + 27 + 18 \cdot 1$$

$$2 + 27 + 18 \cdot 1$$

$$2 + 27 + 18 = 31$$

$$2(81)^0 + 81^{-\frac{3}{4}} + 18 \cdot (81)^{-\frac{1}{2}}$$

$$2 + 1 + \sqrt[4]{81^3} + 18 \sqrt[2]{81^{-1}}$$

$$2 + \sqrt[4]{(3^4)^3} + 18 \sqrt[2]{18^{-1}}$$

$$2 + \sqrt[4]{3^{12}} + 18 \cdot \sqrt[2]{\frac{1}{3^4}}$$

$$2 + 3^3 + 18 \cdot \frac{1}{3^2}$$

$$2 + 27 + 18 \cdot \frac{1}{9}$$

$$2 + 27 + 2$$

$$31$$