Muito Bom!!!

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Lista de Exercícios - Matemática

1) Resolva as equações a seguir:

a) $2(x+4)+5(x+2)=2x+12$

$2x+8+5x+10=2x+12$

$2x+5x-2x=+12-8-10$

$+5x=-6$

$x=\frac{-6}{5}$

c) $10y-5(1+y)=3(2y-2)-20$

$10y-5-5y=6y-6-20$

$10y-5y-6y=-6-20+5$

$-y=-21 \quad \times(-1)$

$y=+21$

b) $23x-16=14-17x$

$23x+17x=14+16$

$40x=30$

$x=+\frac{30}{40} \Rightarrow x=+\frac{3}{4}$

d) $18x-43=65$

$18x=65+43$

$18x=108$

$x=\frac{108}{18} \Rightarrow x=+6$

e) $(x-5)/10+(1-2x)/5=(3-x)/4$

$\frac{(x-5)}{10}+\frac{(1-2x)}{5}=\frac{(3-x)}{4}$

$\frac{2x-10}{20}+\frac{4-8x}{20}=\frac{15-5x}{20}$

$2x-10+4-8x=15-5x$

$2x-8x+5x=15+10-4$

$-x=+21 \quad \times(-1)$

$x=-21$

10, 5, 4	2,
5, 5, 2	2
5, 5, 1	5
1, 1, 1	20

f) $4(x+6)-x=5x+10$

$4x+24-x=5x+10$

$4x-x-5x=10-24$

$4x-6x=-14$

$-2x=-14$

$-x=\frac{-14}{2}$

$-x=-7 \quad \times(-1)$

$x=+7$

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2) Se $A=(x-y)/xy$, $x=2/5$ e $y=1/2$, então determine o valor de A.

$$A=\frac{\left(\frac{2}{5}-\frac{1}{2}\right)}{\frac{2}{5}\times\frac{1}{2}} \rightarrow A=\frac{\left(\frac{4}{10}-\frac{5}{10}\right)}{\frac{2}{5}\times\frac{1}{2}} \rightarrow A=\frac{-\frac{1}{10}}{\frac{2}{5}\times\frac{1}{2}}$$

5, 2	2
5, 1	5
1, 1	10

$$\rightarrow A=\frac{-\frac{1}{10}}{\frac{2}{10}} \rightarrow A=\frac{-1\times 10}{10\times 2} \rightarrow A=\frac{-10}{20} \Rightarrow A=-\frac{1}{2}$$

3) Determine o valor da expressão $a-\left(\frac{ax-x^2}{x+a}\right)$ para $a=3/5$ e $x=4/5$.

$$\frac{3}{5}-\left(\frac{\frac{3}{5}\times\frac{4}{5}-\left(\frac{4}{5}\right)^2}{\frac{4}{5}+\frac{3}{5}}\right) \rightarrow \frac{3}{5}-\left(\frac{\frac{3\times 4}{5\cdot 5}-\frac{16}{25}}{\frac{4}{5}+\frac{3}{5}}\right) \longrightarrow$$

$$\rightarrow \frac{3}{5}-\left(\frac{\frac{12}{25}-\frac{16}{25}}{\frac{4}{5}+\frac{3}{5}}\right) \rightarrow \frac{3}{5}-\left(\frac{-\frac{4}{25}}{\frac{7}{5}}\right) \rightarrow \frac{3}{5}-\left(\frac{-4\times 5}{25\times 7}\right) \longrightarrow$$

5, 175	5
1, 35	5
1, 7	7
1, 1	175

$$\rightarrow \frac{3}{5}-\left(\frac{-20}{175}\right) \rightarrow \frac{3}{5}+\frac{20}{175} \rightarrow \frac{105+20}{175} \rightarrow$$

$$\rightarrow \frac{125}{175}\overset{:25}{=}+\frac{5}{7}$$

4) Efetuar as operações dadas:

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a) $(-3)^2 + (-3)^2 = 9 + 9 = +18$ // (ops...) hummmmmm

a) $(-3)^2 + (-3)^3 = 9 - 27 = -18$ // (esse sim KKK)

b) $(-3)^2 + (-2)^5 = 9 + (-32) = 9 - 32 = -23$ //

c) $2 - \left(\frac{2}{1} + \frac{3}{5}\right)^2 = 2 - \left(\frac{2}{1} + \frac{3}{5}\right) \times \left(\frac{2}{1} + \frac{3}{5}\right) = 2 - \left(\frac{10+3}{5}\right) \times \left(\frac{10+3}{5}\right)$

$2 - \left(\frac{13}{5}\right) \times \left(\frac{13}{5}\right) = \frac{2}{1} - \frac{169}{25} = \frac{50 - 169}{25} = \frac{119}{25} \rightarrow -\frac{119}{25}$ //

d) $\left(\frac{5}{2} - \frac{7}{8} + \frac{9}{10}\right)^2 = \left(\frac{100 - 35 + 36}{40}\right)^2 \rightarrow$

$= \left(\frac{101}{40}\right) \times \left(\frac{101}{40}\right) = +\frac{10201}{1600}$ //

2, 8, 10	2
1, 4, 5	2
1, 2, 5	2
1, 1, 5	5
1, 1, 1	40

e) $-18 - 3 + 5 + 7 = +12 - 21 = -9$ //

f) $\left(\frac{13}{5} - \frac{7}{8}\right)^3 \times \left(\frac{5}{3} + \frac{10}{12}\right)^2 = \left(\frac{104 - 35}{40}\right)^3 \times \left(\frac{20 + 10}{12}\right)^2 \rightarrow$

$= \left(\frac{69}{40}\right)^3 \times \left(\frac{30}{12}\right)^2 = \left(\frac{69}{40} \times \frac{69}{40} \times \frac{69}{40}\right) \times \left(\frac{30}{12} \times \frac{30}{12}\right) \rightarrow$

$= \left(\frac{328.509}{64000}\right) \times \left(\frac{900}{144}\right) = +\frac{295.658.100}{9.216.000} = +\frac{2956581}{92160}$ //

5, 8	2
5, 4	2
5, 2	2
5, 1	5
1, 1	40

3, 12	2
3, 6	2
3, 3	3
1, 1	12

ou melhor...

$= \left(\frac{69}{40}\right)^3 \times \left(\frac{30}{12}\right)^2 \Rightarrow \left(\frac{69}{40}\right)^3 \times \left(\frac{5}{2}\right)^2 = \left(\frac{69}{40}\right)^3 \times \frac{25}{4} = \frac{69^3}{64000} \times \frac{25}{4} \rightarrow$

$= \frac{69^3}{4 \times 2560} = +\frac{69^3}{10240}$ // $= +\frac{328509}{10240}$ //

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g) $\frac{(-2)^3}{1} + \frac{1}{3} \times \frac{7}{2} = \frac{-8}{1} + \left(\frac{1}{3} \times \frac{7}{2}\right) = \frac{-8}{1} + \frac{7}{6} = \frac{-48+7}{6} \rightarrow$

$= -\frac{41}{6}$ //

h) $\left(\frac{6}{9} + \frac{1}{2} - \frac{8}{7}\right)^2 : \left(\frac{9}{10} + \frac{5}{10}\right)^3 =$

$= \left(\frac{+84+63-144}{126}\right)^2 : \left(\frac{14}{10}\right)^3 = \left(\frac{3}{126}\right)^2 : \left(\frac{7}{5}\right)^3 \rightarrow$

9, 2, 7	2
9, 1, 7	3
3, 1, 7	3
1, 1, 7	7
1, 1, 1	126

$= \left(\frac{9}{15876}\right) : \left(\frac{343}{125}\right) = \left(\frac{9}{15876}\right) \times \left(\frac{125}{343}\right) = \frac{1125 : 9}{5445468 : 9} \rightarrow$

$= + \frac{125}{605.052}$ //

* Ao final percebi que deveria ter simplificado a primeira fração, dentro do primeiro parênteses no início da operação. Teria poupado essa simplificação por "9" que foi feita ao final. "A cada dia novos aprendizados".

sim, procure sempre simplificar primeiro. Porque os números são menores e já obtêm o resultado simplificado

i) $2 + \{3 - [1 + (2 - 5 + 4) + 8]\} =$

$2 + \{3 - [1 + (2 - 1) + 8]\} =$

$2 + \{3 - [1 + 1 + 8]\} =$

$2 + \{3 - 10\} =$

$2 - 7 \Rightarrow -5$ //

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