Projeto de Extensão: NIVELAUERJ - Cálculo Zero - 9 questões

Lista 1 - Expressões numéricas e algébricas

Projeto de Extensão: NIVELAUERJ
Cálculo Zero

Questão 1

Resolva e transforme em frações irredutíveis:

(a) $\frac{2}{3}+\frac{5}{6}-\frac{9}{13}$

(a) $\frac{21}{26}$

(b) $\frac{2}{5}-\frac{6}{7}+\frac{8}{11}$

(b) $\frac{104}{385}$

(c) $\frac{22}{3}+\frac{26}{5}-\frac{49}{7}$

(c) $\frac{83}{15}$

(d) $\frac{3}{2}-\frac{4}{3}+\frac{5}{4}$

(d) $\frac{17}{12}$

Questão 2

Resolva e transforme as frações em irredutíveis:

(a) $\left(\frac{-3}{5}\right)\cdot\frac{12}{6}+\frac{3}{4}-\frac{1}{2}$

(a) $-\frac{19}{20}$

(b) $\left(\frac{-1}{5}\right)\frac{6}{4}+\frac{1}{2}+\frac{5}{6}$

(b) $\frac{31}{30}$

(c) $\frac{1}{2}\cdot\frac{2}{4}\cdot\frac{4}{8}+\frac{1}{24}$

(c) $\frac{1}{6}$

Questão 3

Resolva e transforme as frações em irredutíveis:

(a) $\frac{\frac{1}{2}+\frac{5}{3}}{2}$

(a) $\frac{13}{12}$

(b) $\dfrac{\frac{5}{4}-2}{2-\frac{5}{2}}$

(b) $\frac{3}{2}$

(c) $\dfrac{\frac{6}{7}-\frac{7}{8}}{\frac{6}{5}+\frac{3}{2}}$

(c) $-\frac{5}{756}$

(d) $\dfrac{\frac{2}{3}-\frac{1}{2}}{\frac{5}{4}}$

(d) $\frac{2}{15}$

Questão 4 .....

Simplifique:

(a) $(x^4 \cdot y^2)^6 \cdot (x^6 \cdot y^2)^3$

(a) $x^{42}y^{18}$

(b) $(x^2 \cdot y^3)^2 \cdot (x^3 \cdot y^2)^3$

(b) $x^{13}y^{12}$

(c) $\dfrac{(x^4 \cdot y^7)^3}{(x^6 \cdot y^2)^6}$

(c) $\frac{y^9}{x^{24}}$

(d) $\dfrac{(x^3 \cdot y^2)^2 \cdot (x^2 \cdot y^6)^6}{(x^3 \cdot y^5)^7}$

(d) $\frac{y^5}{x^3}$

Questão 5 .....

Calcule:

(a) $\dfrac{3^{-1}+(-3)^1-(-4)^{-1}}{3^2-3^{-2}}$

(a) $-\frac{-87}{320}$

(b) $\dfrac{2^2 - 4^{-2}}{2^2 + 4^{-2}}$

(b) $\dfrac{63}{65}$

(c) $\dfrac{\left(\frac{-4}{3}\right)^2 \cdot \frac{1}{3}}{\left(\frac{-1}{2}\right)^3}$

(c) $-\dfrac{128}{27}$

(d) $\dfrac{x^{-1} + y^{-1}}{(xy)^{-1}}$

(d) $x + y$

Questão 6 .....

Simplifique as expressões:

(a) $\sqrt{12} + \sqrt{24} + \sqrt{60} - \sqrt{72}$

(a) $2(\sqrt{3} + \sqrt{6} + \sqrt{15} - 3\sqrt{2})$

(b) $\sqrt{20} - \sqrt{24} + \sqrt{120} - \sqrt{52}$

(b) $2(\sqrt{5} - \sqrt{6} + \sqrt{30} - \sqrt{13})$

(c) $\sqrt[3]{128} - \sqrt[3]{250} + \sqrt[3]{54} + \sqrt[3]{16}$

(c) $4\sqrt[3]{2}$

Questão 7 .....

Simplifique:

(a) $\sqrt{81x^3}$

(a) $9x\sqrt{x}$

(b) $\sqrt{45x^3y^2}$

(b) $5xy\sqrt{5x}$

(c) $\sqrt{12x^4y^5}$

(c) $2x^2y^2\sqrt{3y}$

Questão 8 .....

Reduza ao mesmo índice:

(a) $\sqrt{3}$, $\sqrt[3]{2}$ e $\sqrt[4]{7}$

(a) $\sqrt[12]{729}$, $\sqrt[12]{16}$ e $\sqrt[12]{343}$

(b) $\sqrt{3}$, $\sqrt[4]{5}$ e $\sqrt[6]{4}$

(b) $\sqrt[12]{729}$, $\sqrt[12]{16}$ **e** $\sqrt[12]{343}$

(c) $\sqrt[3]{4}$, $\sqrt{3}$ e $\sqrt[4]{125}$

(c) $\sqrt[12]{256}$, $\sqrt[12]{729}$ **e** $\sqrt[12]{1953125}$

Questão 9 .....

Efetue as operações dos radicais:

(a) $\sqrt{3} \cdot \sqrt{12}$

(a) 6

(b) $\sqrt{2} \cdot \sqrt{18}$

(b) 6

(c) $\sqrt[3]{12} \div \sqrt[3]{3}$

(c) $\sqrt[3]{4}$

(d) $\sqrt{\frac{3}{2}} \div \sqrt{\frac{1}{2}}$

(d) $\sqrt{3}$