11. Operacije sa korenima – vežbe

ZADATAK 1. Izračunaj:

a) $\sqrt{36} - 2\sqrt{25} + \sqrt[4]{16} - \sqrt[5]{32}$

b) $\sqrt{\dfrac{4}{9}} + \sqrt[3]{\dfrac{1}{8}} + \sqrt[4]{16}$

c) $\sqrt{\left(\dfrac{4}{9}\right)^2} + \sqrt[3]{-27} - \sqrt{4}$

d) $\sqrt{9} \cdot \sqrt[3]{-8} \cdot \sqrt[5]{-32}$

ZADATAK 2. Dokaži da je

a) $\sqrt{80} - 2 - 4\sqrt{5} = 2$

b) $\sqrt{63} + 12 - 3\sqrt{7} - \sqrt{16} = 8$

c) $(0,5\sqrt{98} + 4\sqrt{18}) - (0,2\sqrt{50} + \dfrac{1}{3}\sqrt{72} - \sqrt{200}) = 22,5\sqrt{2}$

ZADATAK 3. Dokaži da je *A=B* ako su:

a) $A = \left(2 - \dfrac{1}{3}\right)\sqrt{5 + \dfrac{2}{5}}$ i $B = \dfrac{3}{4}\sqrt{27 - \dfrac{1}{3}}$

b) $A = \left(1 - \dfrac{1}{3}\right)\sqrt[3]{5 \cdot \left(1 + \dfrac{1}{8}\right)}$ i $B = \left(1 + \dfrac{1}{4}\right)\sqrt[3]{1 - \dfrac{11}{75}}$

c) $A = \sqrt{\left(\dfrac{1}{b} - \dfrac{1}{a}\right)\left(\dfrac{a^2}{b} - \dfrac{b^2}{a}\right)}$ i $B = \dfrac{ab(a^2 - b^2)}{3}\sqrt{\left(\dfrac{1}{a^2} + \dfrac{1}{b^2} + \dfrac{1}{ab}\right) : \dfrac{a^2 b^2 (a+b)^2}{9}}$

ZADATAK 4. Izraze ispod korena uneti pod koren i uprostiti ih:

a) $x\sqrt{\dfrac{1}{x}}$

b) $2a\sqrt{\dfrac{x}{4a}}$

c) $b^3\sqrt{b^4}$

d) $xy^2\sqrt{\dfrac{x}{y^3}}$

e) $(x-1)\sqrt{\dfrac{1}{x^2 - 1}}$

f) $\quad \dfrac{x+y}{a-b}\sqrt{\dfrac{a^2-2ab+b^2}{xy+y^2}}$

g) $\quad \left(1+\dfrac{a}{b}\right)\sqrt[3]{\dfrac{a^2+ab+b^2}{a^2+2ab+b^2}-\dfrac{a}{a+b}}$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\left[R:\sqrt[3]{\dfrac{a+b}{b}}\right]$

ZADATAK 5. Dokaži da je *A=B* ako su

$$A=\frac{x-a}{a}\sqrt[n]{\left(\frac{x}{a}-1\right)^{1-n}}\quad \text{i}\quad B=\frac{x^2-a^2}{a}\sqrt[n]{\frac{a^{n-1}}{(x+a)^n(x-a)^{n-1}}}\ .$$