

Zadanie. Uprość wyrażenie

$$(1) \left(\frac{a\sqrt[3]{a} + \sqrt[3]{a^2}}{a + \sqrt[3]{a}} - \sqrt[3]{x} \right) ((\sqrt[3]{a} - \sqrt[3]{x})^2 + 3(\sqrt[3]{a} + \sqrt[3]{x})^2),$$

$$(2) \left(\frac{a^2 \sqrt[4]{x} + x\sqrt{a}}{a\sqrt[4]{x} + \sqrt{ax}} - \sqrt{a^2 + x + 2a\sqrt{x}} \right)^4,$$

$$(3) \left(\frac{x\sqrt{x}-x}{\left(\frac{\sqrt[4]{x^3}-1}{\sqrt[4]{x}-1}-\sqrt{x}\right)\left(\frac{\sqrt[4]{x^3}+1}{\sqrt[4]{x}+1}-\sqrt{x}\right)} \right)^3,$$

$$(4) \sqrt{a} \left(\frac{a + \sqrt[4]{a^3b^2} + b\sqrt[4]{ab^2} + b^2}{(\sqrt[4]{a} + \sqrt{b})^2} - b \right)^{-1} + \frac{1}{a^{-1/4}b^{1/2}-1},$$

$$(5) \frac{\frac{a+x}{\sqrt[3]{a^2}-\sqrt[3]{x^2}} + \frac{\sqrt[3]{ax^2}-\sqrt[3]{a^2x}}{\sqrt[3]{a^2}-2\sqrt[3]{ax}+\sqrt[3]{x^2}}}{\sqrt[6]{a}-\sqrt[6]{x}} - \sqrt[6]{x},$$

$$(6) \frac{1}{a^{1/4}+a^{1/8}+1} + \frac{1}{a^{1/4}-a^{1/8}+1} - \frac{2a^{1/4}-2}{a^{1/2}-a^{1/4}+1},$$

$$(7) \left(\frac{10x^2+3ax}{4x^2-a^2} + \frac{bx-x^2-ax+ab}{2x+a}(b-x) - 2 \right) \cdot \left(\frac{(a+2x)^{-1/2} + (2x-a)^{1/2}}{(4x^2-a^2)^{-1/2}+1} \right)^2,$$

$$(8) \left(\frac{x+4}{2x^2-2x-4} + \frac{x+2}{2(x^2+3x+2)} \right) \sqrt{2x} - \left(\sqrt{2} + \sqrt{x} - \frac{x+6}{\sqrt{x}+\sqrt{2}} \right) : (x^{1/2} - 2^{1/2}),$$

$$(9) \frac{(1-x^2)^{1/2}+1}{(1+x)^{-1/2}+(1-x)^{1/2}} : \frac{\sqrt{1-x}}{x-2} + (x+1) \left(\frac{1}{x+1} + \frac{4}{x^2-4x} - \frac{5}{x^2-3x-4} \right),$$

$$(10) \frac{a^2\sqrt{ab^{-1}}\sqrt[3]{b^2\sqrt{ab}-2\sqrt{a^3b}}\sqrt[6]{ab^5}}{(a^2-ab-2b^2)\sqrt[3]{a^5b}} - \frac{a-3}{a+2b} \left(\frac{a+2b}{a^2+ab-3a-3b} - (a-1)(a^2-4a+3)^{-1} \right),$$

$$(11) \frac{\sqrt{a\sqrt{ab}}-(ab)^{3/4}:\sqrt{a}}{(a^2-b^2)a^{-1}} \cdot \left(\sqrt[4]{\frac{a}{b}} + \sqrt[4]{\frac{b}{a}} \right) + \frac{b}{a} \left(\frac{2a+2b}{a-4b} + \frac{a+3b}{2a+2b} - \frac{a^2+21ab}{2a^2-6ab-8b^2} \right),$$

$$(12) \left(\frac{\left(\sqrt[3]{ab^2\sqrt{b}} - \sqrt[3]{ab\sqrt{a}} \right)^2}{ab\sqrt[6]{ab}} + 4 \right) : \frac{a\sqrt{b}+b\sqrt{a}}{\sqrt{a}-\sqrt{b}} + \frac{b^2-4a}{4a} \cdot \left(\frac{1}{b^2+3ab+2a^2} - \frac{3}{2a^2+ab-b^2} \right),$$

$$(13) \frac{4(2ab)^{7/4}(a+2b)^{-1}}{\sqrt{a}-\sqrt{2b}} : \frac{\sqrt{2b\sqrt{2ab}}+\sqrt[4]{2a^3b}}{\sqrt{2ab}} - 6 \cdot \left(\frac{a}{6a-48b} - \frac{2b}{3a-6b} - \frac{8b^2}{a^2-10ab+16b^2} \right),$$