Algebra 3 Assignment # 4

Express each of the following in simplified form please.

(1) $\sqrt{864x^7y^9z^{12}}$

(2) $\sqrt[3]{864x^7y^9z^{12}}$

(3) $\sqrt[5]{864x^7y^9z^{12}}$

(4) $\sqrt{32} + \sqrt{72}$

(5) $\sqrt{32} \cdot \sqrt{72}$

(6) $\sqrt[3]{128} + \sqrt[3]{16}$

(7) $\left(\sqrt{2} - \sqrt{5}\right)\left(\sqrt{10} + 2\right)$

(8) $\sqrt[3]{81x^4} - \dfrac{\sqrt[3]{24x^7}}{x}$

(9) $\sqrt{\dfrac{5}{8x}}$

(10) $\sqrt[3]{\dfrac{16}{9}}$

(11) $\sqrt[3]{\dfrac{3z^8}{4x^2y^4}}$

(12) $\sqrt[4]{\dfrac{16x^4}{125y^9z^{17}}}$

(13) $\dfrac{\sqrt{6} + \sqrt{2}}{\sqrt{6} - \sqrt{2}}$

(14) $x^{\frac{1}{2}} \cdot x^{\frac{1}{2}}$

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Answers

(1) $12x^3y^4z^6\left(\sqrt{6xy}\right)$

(2) $6x^2y^3z^4\left(\sqrt[3]{4x}\right)$

(3) $2xyz^2\left(\sqrt[5]{27x^2y^4z^2}\right)$

(4) $10\sqrt{2}$

(5) 48

(6) $6\sqrt[3]{2}$

(7) $-3\sqrt{2}$

(8) $x\left(\sqrt[3]{3x}\right)$

(9) $\dfrac{\sqrt{10x}}{4x}$

(10) $\dfrac{2\sqrt[3]{6}}{3}$

(11) $\dfrac{z^2\left(\sqrt[3]{6xy^2z^2}\right)}{2xy^2}$

(12) $\dfrac{2x\left(\sqrt[4]{5y^3z^3}\right)}{5y^3z^5}$

(13) $2 + \sqrt{3}$

(14) **x**