Algebra 3 Assignment # 5

(1) Evaluate each of the following numbers please.

(a) $16^{\frac{3}{4}}$

(b) $81^{-\frac{1}{2}}$

(c) $(-125)^{-\frac{2}{3}}$

(d) $2^{-\frac{1}{2}} \cdot 8^{-\frac{1}{2}}$

(e) $\dfrac{9^{\frac{1}{2}}}{\sqrt[3]{27}}$

(f) $\dfrac{16^{-\frac{3}{4}}}{27^{-\frac{2}{3}}}$

(g) $\left(\frac{1}{8}\right)^{\frac{1}{3}} + \left(\frac{1}{27}\right)^{-\frac{1}{3}}$

(h) $\left(\frac{8}{27}\right)^{-\frac{2}{3}} + \left(-\frac{32}{243}\right)^{\frac{2}{5}}$

(2) Simplify, express all answers without negative exponents please.

(a) $\left(x^{-4}y^{-8}\right)^{\frac{3}{4}}$

(b) $\dfrac{x^2 y^{-\frac{1}{2}} z^{\frac{1}{3}}}{x^{-3} y^{-\frac{5}{2}} z^{-\frac{1}{3}}}$

(3) Express $\sqrt[3]{x^4\left(\sqrt[4]{x^2\left(\sqrt[3]{x^2}\right)}\right)}$ as a single radical in simplified form.

(4) Simplify, express all answers without radicals.

(a) $\sqrt{\dfrac{x^n}{x^{n-2}}}$

(b) $\sqrt[3]{\dfrac{x^{3n+1}y^n}{x^{3n+4}y^{4n}}}$

(5) Expand each of the following please.

(a) $(2x - 3)(x^2 + 3x + 2)$

(b) $(x - 2)^4$

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Answers

(1) **(a)** 8

(b) $\frac{1}{9}$

(c) $\frac{1}{25}$

(d) $\frac{1}{4}$

(e) 1

(f) $\frac{9}{8}$

(g) $\frac{7}{2}$

(h) $\frac{97}{36}$

(2) **(a)** $\frac{1}{x^3y^6}$

(b) $x^5y^2z^{\frac{2}{3}}$

(3) $x\left(\sqrt[9]{x^5}\right)$

(4) **(a)** x

(b) $\frac{1}{xy^n}$

(5) **(a)** $2x^3 + 3x^2 - 5x - 6$

(b) $x^4 - 8x^3 + 24x^2 - 32x + 16$