

7.5 Operations w/ Radical Expressions (Pg 439)

Ex #1a) $\sqrt{32x^8}$
 $\sqrt{(4)^2 \cdot 2 (x^4)^2}$
 $4x^4 \sqrt{2}$

b) $\sqrt{16a^{24}b^{16}}$
 $\sqrt{(2)^4 (a^6)^4 (b^4)^4}$
 $2a^6 b^4 \sqrt{b}$

3a) $5\sqrt[3]{-12ab^4} + 3\sqrt[3]{18a^2b^2}$
 $15\sqrt[3]{-1 \cdot 12 \cdot 18 a^3 b^6}$
 $-1 \cdot 216 a^3 (b^2)^3$
 $15\sqrt[3]{-1 (6)^3 a^3 (b^2)^3}$
 $15 \cdot 6ab^2$
 $-90ab^2$

3A. $6\sqrt{8c^3d^5} + 4\sqrt{2cd}$
 $24\sqrt{16c^4d^6}$
 $24\sqrt{4^2 (c^2)^2 (d^3)^2}$
 $24 \cdot 4c^2d^3$
 $96c^2d^3$

4a) $5\sqrt{12} + 2\sqrt{27} - \sqrt{128}$
 $5\sqrt{4 \cdot 3} + 2\sqrt{9 \cdot 3} - \sqrt{64 \cdot 2}$
 $10\sqrt{3} + 6\sqrt{3} - 8\sqrt{2}$
 $16\sqrt{3} - 8\sqrt{2}$

Ex #6: $\frac{2}{\sqrt{5}-1} \cdot \frac{\sqrt{5}+1}{\sqrt{5}+1} = \frac{2(\sqrt{5}+1)}{5-1} = \frac{2\sqrt{5}+2}{4} = \frac{\sqrt{5}+1}{2}$

Ex #2a) $\sqrt[4]{\frac{x^6}{y^7}}$
 $\frac{\sqrt[4]{x^6}}{\sqrt[4]{y^7}} = \frac{\sqrt{x^3} \sqrt[4]{x^2}}{\sqrt[4]{y^7}}$
 $\frac{x^{\frac{3}{2}} \sqrt[4]{x^2}}{y^{\frac{7}{4}} \sqrt[4]{y}}$
 $\frac{x^{\frac{3}{2}} \sqrt[4]{x^2}}{y^{\frac{8}{4}} \sqrt[4]{y}}$
 $\frac{x^{\frac{3}{2}} \sqrt[4]{x^2}}{y^2 \sqrt[4]{y}}$

2b) $\sqrt[4]{\frac{6}{5x}} = \frac{\sqrt[4]{6}}{\sqrt[4]{5x}}$
 $\frac{\sqrt[4]{6} \cdot \sqrt[4]{(5^3)(x^3)}}{\sqrt[4]{5x} \cdot \sqrt[4]{(5^3)(x^3)}} = \frac{\sqrt[4]{6 \cdot 5^3 x^3}}{\sqrt[4]{5^4 x^4}}$
 $\frac{\sqrt[4]{6 \cdot 5^3 x^3}}{5x}$

Ex 4: $\sqrt{98} - 2\sqrt{32}$
 $\sqrt{2 \cdot 49} - 2\sqrt{2 \cdot 16}$
 $7\sqrt{2} - 2 \cdot 4\sqrt{2}$
 $7\sqrt{2} - 8\sqrt{2}$
 $-\sqrt{2}$

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(Pg 439)

Ex #1a) $\sqrt{32x^8}$
 $\sqrt{(4)^2 \cdot 2 (x^4)^2}$
 $4x^4 \sqrt{2}$

b) $\sqrt[4]{16a^{24}b^{13}}$
 $\sqrt[4]{(2)^4 (a^6)^4 (b^3)^4 b}$
 $2a^6 b^3 \sqrt[4]{b}$

3a) $5\sqrt[3]{-12ab^4} \cdot 3\sqrt[3]{18a^2b^2}$
 $15\sqrt[3]{-1 \cdot 2 \cdot 18 a^3 b^6}$
 $-1 \cdot 2 \cdot 18 a^3 (b^2)^3$
 $15\sqrt[3]{-1 (b)^3 a^3 (b^2)^3}$
 $15 \cdot 6 a b^2$
 $-90 a b^2$

3A. $6\sqrt[3]{8c^3d^5} \cdot 4\sqrt{2cd}$
 $24\sqrt[3]{16c^4d^6}$
 $24\sqrt[3]{4^2 (c^2)^2 (d^3)^2}$
 $24 \cdot 4 c^2 d^3$
 $96 c^2 d^3$

4A) $5\sqrt{12} + 2\sqrt{27} - \sqrt{128}$
 $5\sqrt{4 \cdot 3} + 2\sqrt{9 \cdot 3} - \sqrt{64 \cdot 2}$
 $10\sqrt{3} + 6\sqrt{3} - 8\sqrt{2}$
 $16\sqrt{3} - 8\sqrt{2}$

EX #5) $(4\sqrt{3} + 5\sqrt{2})(3\sqrt{2} - 6)$
 $12\sqrt{6} - 24\sqrt{3} + 15\sqrt{4} - 30\sqrt{2}$
 $12\sqrt{6} - 24\sqrt{3} + 30 - 30\sqrt{2}$

EX #6) $\frac{2}{\sqrt{5}-1} \cdot \frac{\sqrt{5}+1}{\sqrt{5}+1} = \frac{2\sqrt{5}+2}{5-1} = \frac{2\sqrt{5}+2}{4}$
 $\frac{\sqrt{5}+1}{2}$

32
 $2 \cdot 16$
 $4 \cdot 4$
 4 math 5 = $\sqrt{}$
 enter 16 enter

EX #2a) $\sqrt{x^6} = \sqrt{x^6 \sqrt{6^2}}$
 $\sqrt{y^7} = \sqrt{y^6 \sqrt{y}}$
 $\frac{x^3}{y^3 \sqrt{y}} \cdot \frac{\sqrt{y}}{\sqrt{y}} = \frac{x^3 \sqrt{y}}{y^4}$

2b) $\sqrt[4]{\frac{6}{5x}} = \frac{\sqrt[4]{6}}{\sqrt[4]{5x}}$
 $\frac{\sqrt[4]{6} \cdot \sqrt[4]{(15)^3 (x)^3}}{\sqrt[4]{(5)^3 (x)^3}} = \frac{\sqrt[4]{6 \cdot 5^3 x^3}}{\sqrt[4]{5^3 x^3}}$
 $\frac{\sqrt[4]{6 \cdot 5^3 x^3}}{5x} = \frac{\sqrt[4]{750 x^3}}{5x}$

EX 4) $\sqrt{98} - 2\sqrt{32}$
 $\sqrt{2 \cdot 49} - 2\sqrt{2 \cdot 16}$
 $7\sqrt{2} - 2 \cdot 4\sqrt{2}$
 $7\sqrt{2} - 8\sqrt{2}$
 $-\sqrt{2}$