

Simplify each. Assume that all variables are positive.

$$\sqrt[3]{2m^5n} \cdot \sqrt[3]{4m^8n^3} \cdot \sqrt[3]{3mn^7} = \sqrt[3]{24m^{14}n^{11}}$$

$$= 2m^4n^3\sqrt[3]{3m^2n^2}$$

Handwritten work shows the product of three cube roots. The first root has index 2, the second 2, and the third 3. The radicand is $24m^{14}n^{11}$. The prime factorization of 24 is $2^3 \cdot 3$. The final simplified form is $2m^4n^3\sqrt[3]{3m^2n^2}$.

Simplify each. Assume that all variables are positive.

$$\sqrt[5]{12c^4d} \cdot \sqrt[5]{14c^7d^3} \cdot \sqrt[5]{20c^2d^8} = \sqrt[5]{3360c^{13}d^{12}}$$

$$= 2c^2d^2\sqrt[5]{105c^3d^4}$$

Handwritten work shows the product of three fifth roots. The radicand is $3360c^{13}d^{12}$. The prime factorization of 3360 is $2^5 \cdot 3 \cdot 7 \cdot 5$. The final simplified form is $2c^2d^2\sqrt[5]{105c^3d^4}$.

Simplify each. Assume that all variables are positive.
Rationalize denominators as necessary.

$$\frac{\sqrt[3]{5a^7b^2}}{\sqrt[3]{15ab^{10}}}$$

Simplify each.

1. $\sqrt{5} \cdot \sqrt{5}$

$$= 5$$

2. $3\sqrt{7} \cdot 4\sqrt{7}$

$$12 \cdot 7 = 84$$

Simplify. Rationalize denominators. Assume variables are positive.

$$\frac{(5 + \sqrt{2} - \sqrt{3})}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{5\sqrt{3} + \sqrt{6} - 3}{3}}$$

Simplify each.

$$3. \quad \sqrt{11} \cdot 2\sqrt{3} = 2\sqrt{33}$$

$$4. \quad \sqrt{2}(7 - \sqrt{8}) = \boxed{7\sqrt{2} - 4}$$

$$5. \quad 2\sqrt{3}(7\sqrt{2} + 5\sqrt{3}) = 14\sqrt{6} + 10 \cdot 3 = \boxed{14\sqrt{6} + 30}$$

You can now finish Hwk #9

Sec 7-2

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Problems 19, 20, 24, 25, 28, 30, 33, 43, 46, 50, 53

Simplify.

Like-radicals: Have the same index and same radicand.

$$1. \quad \begin{array}{cccc} 5\sqrt{18} & + 6\sqrt{12} & - \sqrt{8} & - 2\sqrt{27} \\ \begin{smallmatrix} \text{9} \cdot 2 \\ \text{4} \cdot 3 \\ \text{4} \cdot 2 \\ \text{9} \cdot 3 \end{smallmatrix} & & & \\ 15\sqrt{2} & + 12\sqrt{3} & - 2\sqrt{2} & - 6\sqrt{3} \\ \hline & & & \\ \boxed{13\sqrt{2} + 6\sqrt{3}} & & & \end{array}$$

Sec 7-3: Binomial Radical Expressions.

Expand each.

1. $(3 + \sqrt{5})(7 - \sqrt{5})$

$$16 - 4\sqrt{5}$$

	3	$+\sqrt{5}$
7	21	$+7\sqrt{5}$
$-\sqrt{5}$	$-3\sqrt{5}$	-5

Expand and simplify.

2. $(5 - \sqrt{2})(6 + \sqrt{3})$

	5	$-\sqrt{2}$
6	30	$-6\sqrt{2}$
$\sqrt{3}$	$5\sqrt{3}$	$-\sqrt{6}$

$$= 30 - 6\sqrt{2} + 5\sqrt{3} - \sqrt{6}$$