

**Section 6-3  
Binomial Radical Expressions**

**-Students will be able to add and subtract radical expressions**

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**You combine radical expressions to find the sum or difference.**

**Simplify:**

$$2\sqrt{3} + 4\sqrt{3} = 6\sqrt{3}$$

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**Simplify:**

$$3\sqrt{5x} - 2\sqrt{5x} = \sqrt{5x}$$

$$6x^2\sqrt{7} + 4x\sqrt{5}$$

different radicands, can't simplify

$$7\sqrt[3]{5x} - 4\sqrt{5x}$$

different index, cannot combine

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Sometimes you must simplify an expression first, so that you can combine like terms.

$$\sqrt{28} - \sqrt{175} + \sqrt{63}$$

$\leftarrow 4\sqrt{7}$     $\leftarrow 25\sqrt{7}$     $\leftarrow 3\sqrt{7}$

$$2\sqrt{7} - 5\sqrt{7} + 3\sqrt{7} = 0\sqrt{7} = 0$$

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What is the product:

$$(4 + 2\sqrt{2})(5 + 4\sqrt{2})$$

Foiz

$$20 + 16\sqrt{2} + 10\sqrt{2} + 8\sqrt{4} = 36 + 26\sqrt{2}$$

$$(6 - \sqrt{12})(6 + \sqrt{12})$$

$$36 + 6\sqrt{12} - 6\sqrt{12} - \sqrt{144}$$

$$36 - 12 = 24$$

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**Simplify:**

$$\frac{2\sqrt{7}(\sqrt{3} + \sqrt{5})}{(\sqrt{3} - \sqrt{5})(\sqrt{3} + \sqrt{5})}$$

$$\frac{2\sqrt{21} + 2\sqrt{35}}{3 - 5}$$

$$= \frac{2\sqrt{21} + 2\sqrt{35}}{-2}$$

$$= -\sqrt{21} - \sqrt{35}$$

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Simplify:

$$\frac{4x(3+\sqrt{6})}{(3-\sqrt{6})(3+\sqrt{6})} = \frac{12x+4x\sqrt{6}}{9-6}$$

$$= \frac{12x+4x\sqrt{6}}{3}$$

$$= 4x + \frac{4x\sqrt{6}}{3}$$

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Hwk: pg. 378 - 379  
#18 - 34 (4th), 38 - 50 evens,  
56 - 64 evens

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