

**11 - 2**

**Operations with  
Radical Expressions**



**add or subtract**

treat as "like terms"

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**Ex:**  $4\sqrt{3} + 6\sqrt{3} - 5\sqrt{3}$

$5\sqrt{3}$

**Ex:**  $\underline{12\sqrt{5}} + \underline{3\sqrt{7} + 6\sqrt{7}} - \underline{8\sqrt{5}}$

$4\sqrt{5} + 9\sqrt{7}$

**Ex:**  $2\sqrt{20} + 3\sqrt{45} + \sqrt{180}$

$2\sqrt{4 \cdot 5} \quad 3\sqrt{9 \cdot 5} \quad \sqrt{36 \cdot 5}$

$4\sqrt{5} + 9\sqrt{5} + 6\sqrt{5}$

$19\sqrt{5}$

Ex:  $3\sqrt{6} \cdot 4\sqrt{3}$

$$12\sqrt{18}$$

$$3 \times 2 \times 2$$

$$36\sqrt{2}$$

Ex:  $(4\sqrt{5} - 2\sqrt{3})(3\sqrt{6} - \sqrt{10})$

$$12\sqrt{30} - 4\sqrt{50} - 6\sqrt{18} + 2\sqrt{30}$$

$$5 \times 2 \times 2 \quad 3 \times 2 \times 2$$

$$-20\sqrt{2} \quad -18\sqrt{2}$$

$$14\sqrt{30} - 38\sqrt{2}$$

**Ex:**  $\sqrt{2} (\sqrt{8} + 4\sqrt{3})$

$$\sqrt{16} + 4\sqrt{6}$$

$$\downarrow$$
$$4$$

$$4 + 4\sqrt{6}$$



Homework:

p.595 #14 - 24 even, 30 - 32