

3-2 Operations with Radicals

Objectives:

- 3-2a: I can multiply radical expressions
- 3-2b: I can add and subtract radical expressions

Group Together all the like terms

Diagram showing like terms grouped together in circles:

- x^2 (orange circle)
- $-4x$ (green circle)
- $3x$ (green circle)
- a^2b (purple circle)
- $7x^2$ (orange circle)
- $3a^2b$ (purple circle)

Handwritten notes:

- $8x^2$ and $-x$ (orange)
- $4a^2b$ (purple)

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Aug 13-9:38 AM

Combine the following like terms

$$x - 2 + 3x + 7$$

$$4x + 5$$

$$3a + 4b - a - 2b$$

$$9x^2 + x - 3x + 4$$

$$9x^2 - 2x + 4$$

Like Terms for Radicals

★ Like terms = same info under radical ★

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

$$2\sqrt{x} + 7\sqrt{x} = 9\sqrt{x}$$

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Simplify following radical expressions

$$4\sqrt{2} - \sqrt{3} + \sqrt{2}$$

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

+ 2
+ 1
- 3
=

Simplify following radical expressions

$$\sqrt{3} - 2\sqrt{3} + \sqrt{7}$$

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

$$10\sqrt{5} - \sqrt{3}$$

$$3\sqrt{11} + 4\sqrt{3} - \sqrt{11}$$

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$$\sqrt{20} + \sqrt{45}$$

$$\begin{array}{cc} \swarrow & \searrow & \swarrow & \searrow \\ 5 & 4 & 9 & 5 \\ \textcircled{2} & 2 & \textcircled{3} & 3 \end{array}$$

$$2\sqrt{5} + 3\sqrt{5}$$

$$\textcircled{5\sqrt{5}}$$

$$\sqrt{12} + \sqrt{15}$$

$$\begin{array}{cc} \swarrow & \searrow & \swarrow & \searrow \\ 4 & 3 & 5 & 3 \\ \textcircled{2} & 2 & & \end{array}$$

$$\textcircled{2\sqrt{3} + \sqrt{15}}$$

#10) $-2\sqrt{45} - 3\sqrt{20} - 2\sqrt{6}$

$$\begin{array}{ccc} \begin{array}{cc} \swarrow & \searrow \\ 9 & 5 \\ \textcircled{3} & 3 \end{array} & \begin{array}{cc} \swarrow & \searrow \\ 4 & 5 \\ \textcircled{2} & 2 \end{array} & \begin{array}{cc} \swarrow & \searrow \\ 3 & 2 \end{array} \\ -6\sqrt{5} & -6\sqrt{5} & -2\sqrt{6} \\ \textcircled{-12\sqrt{5} - 2\sqrt{6}} & & \end{array}$$

Sep 28-9:23 AM

Sep 28-9:28 AM

Multiplying Radicals

$$\sqrt{2} \cdot \sqrt{3} = \sqrt{2 \cdot 3} = \boxed{\sqrt{6}}$$

****You do not need like terms to multiply****
You only need the same root

$$2\sqrt{5} \cdot 3\sqrt{7} = 2 \cdot 3 \sqrt{5 \cdot 7} = \boxed{6\sqrt{35}}$$

****Multiply outsides to outsides, and
 insides to insides****

Multiply the following

$$\sqrt{5} \cdot \sqrt{3} = \boxed{\sqrt{15}}$$

$$\sqrt{11} \cdot \sqrt{7}$$

$$\sqrt{6} \cdot \sqrt{8} = \sqrt{48}$$

$$\begin{array}{c} 6 \quad 8 \\ \diagdown \quad \diagup \\ 3 \quad 2 \quad 2 \quad 4 \\ \diagup \quad \diagdown \quad \diagup \quad \diagdown \\ 2 \quad 2 \quad 2 \quad 2 \end{array}$$

$$\boxed{4\sqrt{3}}$$

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Aug 13-10:20 AM

Multiply the following

$$4\sqrt{3} \cdot 2\sqrt{5}$$

$$\sqrt{5} \cdot 7\sqrt{4} = 7\sqrt{20} = \boxed{14\sqrt{5}}$$

$$\begin{array}{c} 4 \quad 5 \\ \diagdown \quad \diagup \\ 2 \quad 2 \end{array}$$

Aug 13-10:28 AM