Name _____ Class _____ Date _____

Reteaching 10-3

Operations With Radical Expressions

OBJECTIVE: Simplifying radical expressions **MATERIALS:** None

- Underline radicals not in simplest form.
- Circle like terms. They can be combined.

Example

Simplify $\sqrt{27} + 2\sqrt{3}$.

$\sqrt{27} + 2\sqrt{3}$ ← **Underline radicals not in simplest form.**

$\sqrt{9 \cdot 3} + 2\sqrt{3}$ ← **Rewrite as a product of perfect squares and other factors. 9 is a perfect square and a factor of 27.**

$\sqrt{9} \cdot \sqrt{3} + 2\sqrt{3}$ ← **Use the Multiplication Property of Square Roots.**

$3\sqrt{3} + 2\sqrt{3}$ ← **Simplify $\sqrt{9}$.**

$3\sqrt{3} + 2\sqrt{3}$ ← **Circle like terms.**

$5\sqrt{3}$ ← **Combine like terms by adding the coefficients.**

Example

Simplify $\sqrt{5}(2 + \sqrt{10})$

$\sqrt{5}(2 + \sqrt{10}) = 2\sqrt{5} + \sqrt{50}$ ← **Use the Distributive Property.**

$= 2\sqrt{5} + \sqrt{25} \cdot \sqrt{2}$ ← **Use the Multiplication Property of Square Roots.**

$= 2\sqrt{5} + 5\sqrt{2}$ ← **Simplify.**

Exercises

Underline radicals not in simplest form and circle like terms. Simplify each expression.

1. $3\sqrt{24} - 2\sqrt{6}$ **2.** $6\sqrt{3} + 4\sqrt{3}$ **3.** $\sqrt{27} + \sqrt{3}$

4. $3\sqrt{12} - 2\sqrt{3}$ **5.** $10\sqrt{6} - 3\sqrt{6}$ **6.** $6\sqrt{7} - \sqrt{28}$

Simplify each expression.

7. $\sqrt{5}(\sqrt{5} + 2)$ **8.** $(\sqrt{2} + 1)(\sqrt{2} - 1)$ **9.** $\sqrt{2}(\sqrt{2} - \sqrt{3})$

10. $(2\sqrt{3} + \sqrt{5})^2$ **11.** $(3\sqrt{2} - \sqrt{5})(2\sqrt{5} + 4\sqrt{2})$ **12.** $(2\sqrt{3} + 1)(\sqrt{3})$

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