

Name: _____

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Instructor: _____

Date: _____

Class Time: _____

Unit 8 Module B Notes Sections 21.3 -21.5

View the PowerPoint, Videos, or Textbook for Module 8A.

Vocabulary **Fill in the blanks.**

1. (Section 21.3) For any non-negative real numbers a and b and any index k ,

$$\sqrt[k]{ab} = \underline{\hspace{2cm}} \text{ or } \underline{\hspace{2cm}} = a^{1/k} \cdot b^{1/k}$$

2. (Section 21.4) _____ are radicals that have the same index and radicand.
3. (Section 21.5) The procedure for finding an equivalent expression without a radical in the denominator is called _____.
4. (Section 21.5) The expressions $\sqrt{a} + \sqrt{b}$ and $\sqrt{a} - \sqrt{b}$ are called _____.

Problems **Show ALL steps.** Assume that no radicands were formed by raising negative numbers to even powers.

1. (Section 21.3) Multiply and simplify.

a. $\sqrt[3]{\frac{5}{p}} \cdot \sqrt[3]{\frac{2}{q}}$

b. $\sqrt[4]{x} \cdot \sqrt[3]{2y}$

c. $\sqrt{3y} \cdot \sqrt{12y}$

2. (Section 21.3) Simplify by factoring.

a. $\sqrt{300}$

b. $\sqrt{20ab^3c^2}$

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3. (Section 21.3) Divide and simplify. $\frac{\sqrt[4]{x^3y^2}}{\sqrt[3]{x^2y}}$

4. (Section 21.4) Add. $3\sqrt[3]{y^5} + 4\sqrt[3]{y^2} + \sqrt[3]{8y^2}$

5. (Section 21.4) Multiply. $(4\sqrt{3} + \sqrt{y})(\sqrt{3} - 5\sqrt{y})$

6. (Section 21.5) Rationalize the denominator.

a. $\sqrt[3]{\frac{4x}{5y}}$

b. $\frac{7}{2 - \sqrt{x}}$