8-9 Simplifying Radicals with Multiplication 6.2

Warm-up: Simplifying Radical Expressions p.8

a.) $\sqrt{16x^2}$ $x \cdot x$ → $4 \cdot 4$ → $2 \cdot 2 \cdot 2 \cdot 2$ → $2 \cdot 2 \cdot x$ → $4x$

b.) $\sqrt[3]{8x^3}$ groups of 3 → $x \cdot x \cdot x$ → $4 \cdot 2$ → $2 \cdot 2 \cdot 2$ → $2x$

c.) $\sqrt[3]{a^6b^9}$ $a \cdot a \cdot a \cdot a \cdot a \cdot a$ $b \cdot b \cdot b \cdot b \cdot b \cdot b \cdot b \cdot b \cdot b$ → $a \cdot a \cdot b \cdot b \cdot b$ → a^2b^3

d.) $\sqrt[4]{x^8y^{12}}$ → x^2y^3

Simplifying Radicals Using Product Rule

p.9

$$\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{a \cdot b}$$

1) $-3\sqrt[3]{8} \cdot \sqrt[3]{30}$

$-3\sqrt[3]{240}$ $-3\sqrt{8 \cdot 30}$

8 → 2, 4 → 2, 2; 30 → 3, 10 → 2, 5

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

$-12\sqrt{15}$

Simplifying Radicals Using Product Rule

p.9

$$\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{a \cdot b}$$

2) $\sqrt[3]{36} \cdot 12\sqrt[3]{3}$

$12\sqrt[3]{108}$

36 3

12 3

4 3

2 2

$12 \cdot 3\sqrt[3]{2 \cdot 2}$

$36\sqrt[3]{4}$

More Practice Multiplying Radicals p.9

3) ~~$-\sqrt[3]{4} \cdot \sqrt[3]{14}$~~

4) $2\sqrt[2]{3x^2} \cdot 5\sqrt[2]{8x^3}$

$10\sqrt{3x^2 \cdot 8x^3}$

3 1 (x·x)

4 2 (x·x·x)

2 2

$10 \cdot 2 \cdot x \cdot x\sqrt{3 \cdot 1 \cdot 2 \cdot x}$

$20x^2\sqrt{6x}$

p.9

5) groups of 3

$\sqrt[3]{36x^4} \cdot 4\sqrt[3]{3x}$

$4\sqrt{36x^4 \cdot 3x}$

12 | 3 | x·x·x·x

2 6

2 3

3 x

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

$12x\sqrt[3]{4x^2}$

6) ~~$\sqrt[3]{16x^4} \cdot \sqrt[3]{16x^4}$~~

p.9

7) $\sqrt[3]{25n^4} \cdot \sqrt[3]{5n^3}$

8) $\sqrt[4]{18m^4} \cdot \sqrt[4]{27m}$

Homework - Worksheet #1-6

In class tomorrow #7-20

This will be due by the end of class tomorrow!