

## Dividing Radicals (ser. 5.2 pg. 286)

When dividing radicals, divide the coefficients (number outside) and divide the radicals (\*they must be like radicals → same index number)

$$\text{ex. 1) } \frac{4 \sqrt[3]{6}}{2 \sqrt[3]{3}} = 2 \sqrt[3]{2}$$

For radical numbers that can't divide evenly, you still have to rid of the radical in the denominator by **Rationalizing the denominator.**

$$\text{ex. 2) } \frac{5}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{3}}{2(3)} = \frac{5\sqrt{3}}{6}$$

$$\begin{aligned} \text{ex. 3) } \frac{3\sqrt{135m^5}}{\sqrt{21m^3}} &= \frac{3(3m^2\sqrt{15m})}{m\sqrt{21m}} \\ &= \frac{9m^2\sqrt{15m}}{m\sqrt{21m}} = \frac{9m\sqrt{15m}}{\sqrt{21m}} \cdot \frac{\sqrt{21m}}{\sqrt{21m}} \\ &= \frac{9m\sqrt{315m^2}}{21m} = \frac{9m(3m\sqrt{35})}{21m} \\ &= \frac{27m^2\sqrt{35}}{21m} = \frac{9m\sqrt{35}}{7} \end{aligned}$$

$$\text{ex. 4)} \left( \frac{2c - c\sqrt{25}}{\sqrt{3}} \right) \frac{\sqrt{3}}{\sqrt{3}}$$

$$= \frac{2c\sqrt{3} - c\sqrt{75}}{3}$$

$$= \frac{2c\sqrt{3} - 5c\sqrt{3}}{3} = -\frac{3c\sqrt{3}}{3}$$

$$= -c\sqrt{3}$$

5.2 sheet

# 1-7

**BLM 5-5 Section 5.2 Extra Practice**

1. a)  $12\sqrt{15}$  b)  $5\sqrt{2}$  c)  $\frac{21}{2}\sqrt{2}$  d)  $9x^6$

2. a)  $20 + 5\sqrt{2}$  b)  $15\sqrt{3} - 3\sqrt{5}$

c)  $2\sqrt{2} + 4$  d)  $6x - 3\sqrt{2x}, x \geq 0$

3. a)  $6 + 4\sqrt{3}$  b)  $146 + 23\sqrt{7}$  c)  $-49$  d)  $93 + 24\sqrt{15}$

4. a)  $x - 2\sqrt{x} - 3, x \geq 0$  b)  $x^2 - 5$

c)  $2x + 3\sqrt{x} - 2, x \geq 0$  d)  $4x + 4\sqrt{x} + 1, x \geq 0$

5. a) 2 b)  $\sqrt{6}$  c)  $\frac{3}{x^2}$  d)  $\frac{x^2\sqrt{3}}{4}$

6. a)  $\frac{\sqrt{30}}{3}$  b)  $\frac{4\sqrt{30}}{5}$  c)  $\frac{5\sqrt{3}}{3}$  d)  $\frac{\sqrt{30}}{14}$

7. a)  $\frac{3-\sqrt{3}}{3}$  b)  $\frac{2+2\sqrt{3}}{3}$

c)  $\sqrt{2}$  d)  $\frac{x\sqrt{2} + 2\sqrt{x}}{x}$