U2D1b MCR 3UI **Rationalizing the Denominator**

Warm Up: Simplify.

a) $\sqrt{5} \times \sqrt{5}$ b) $(2\sqrt{5})(5\sqrt{5})$ c) $\left(2-\sqrt{5}\right)\left(2+\sqrt{5}\right)$

d) $\left(2\sqrt{3}-\sqrt{5}\right)\left(2\sqrt{3}+\sqrt{5}\right)$ e) $\sqrt{y} \times \sqrt{y}$ f) $\left(a\sqrt{b}+c\sqrt{d}\right)\left(a\sqrt{b}-c\sqrt{d}\right)$

Reminder: To be fully simplified, an expression cannot contain a radical in the denominator. To eliminate the radical, we _____ **the denominator**.

- ✓ To rationalize a _____ denominator, multiply by the _____ in the denominator. Then simplify.
- ✓ To rationalize a _____ denominator, multiply by the _____. Then simplify.

Note: A conjugate is formed by changing the sign between the two terms in a binomial. Ex.) 3x – 1 is the conjugate of 3x + 1.

Example 1. Rationalize the Denominator.

a) $\frac{\sqrt{5}}{\sqrt{7}}$ b) $\frac{3}{4\sqrt{11}}$

c) $\frac{7}{2\sqrt{6}-\sqrt{3}}$ d) $\frac{\sqrt{5}+\sqrt{2}}{\sqrt{5}+3\sqrt{7}}$