Section 8.4 – Multiply and Divide Rational Expressions

Definition:

Simplifying Rational Expressions – a rational expression is in simplified form if its numerator and denominator have no _____ (other than one)

Ex. $\dfrac{15}{65} = \dfrac{3 \cdot 5}{13 \cdot 5} = \dfrac{3}{13}$ $\dfrac{4(x+3)}{(x-5)(x+3)} = \dfrac{4}{x-5}$

Note – this process may require _____ first before dividing

Example 1.) Simplify $\dfrac{x^2-2x-15}{x^2-9}$

Definition:

Multiplying Rational Expressions – multiply _____, multiply denominators, and simplify if necessary

Ex. $\dfrac{2}{3} \cdot \dfrac{5}{7} = \dfrac{10}{21}$

Example 2.) Multiply $\dfrac{8x^3y}{2xy^2} \cdot \dfrac{7x^4y^3}{4y}$ **Example 3.)** Multiply $\dfrac{3x-3x^2}{x^2+4x-5} \cdot \dfrac{x^2+x-20}{3x}$

Example 4.) Multiply $\dfrac{x+2}{x^3-27} \cdot (x^2 + 3x + 9)$