

## 6.2 Multiply and Divide Rational Expressions

### REMEMBER:

If there is addition and/or subtraction you must factor first.

The following cancellation is *incorrect*:

$$\frac{x + 10}{\cancel{5}x + 10}$$

$\swarrow$   
**Wrong!**

$$\frac{x+5}{x+5} = \text{---} \quad \frac{x-5}{5-x} = \text{---} \quad \frac{x-5}{x+5} \text{ will NOT reduce}$$

Multiply.

1.  $\frac{5}{9} \cdot \frac{12}{10}$

2.  $\frac{12}{x^2} \cdot \frac{5x^7}{8x}$

3.  $\frac{x^2 - 16}{x^2} \cdot \frac{x^2 + 2x}{x^2 - 2x - 8}$

4.  $\frac{x^2 + 2x}{6x} \cdot \frac{3x^2}{x^2 - 4}$

5.  $\frac{(y+2)^5}{(y-3)^2} \cdot \frac{y^2 - 9}{y^2 + 4y + 4}$

6.  $\frac{x-3}{3x-3} \cdot \frac{x^2 - 1}{x^2 - 6x + 9}$

Division of two algebraic fractions is done by keeping the first fraction unchanged and then \_\_\_\_\_.

Before we do any multiplication of algebraic fractions, we always first try to \_\_\_\_\_.

Divide.

**1.**  $\frac{4}{7} \div \frac{8}{9}$

**2.**  $\frac{x^3}{5} \div \frac{7}{x}$

**3.**  $\frac{x-y}{x} \div \frac{y-x}{y}$

**4.**  $\frac{5x-15}{x+3} \div \frac{x-3}{x^2-9}$

**5.**  $\frac{5x^2+6x+1}{x^2+5x+6} \div (5x+1)$

**6.**  $(3x-2) \div \frac{9x^2-4}{6x+4}$