

**EXAMPLE 1****Simplify a rational expression**

**Simplify :**  $\frac{x^2 - 2x - 15}{x^2 - 9}$

**SOLUTION**

$$\frac{x^2 - 2x - 15}{x^2 - 9} = \frac{(x+3)(x-5)}{(x+3)(x-3)}$$

**Factor numerator and denominator.**

$$= \frac{\cancel{(x+3)}(x-5)}{\cancel{(x+3)}(x-3)}$$

**Divide out common factor.**

$$= \frac{x-5}{x-3}$$

**Simplified form**

**ANSWER**

$$\frac{x-5}{x-3}$$

**EXAMPLE 3****Standardized Test Practice**

What is a simplified form of  $\frac{8x^3y}{2xy^2} \cdot \frac{7x^4y^3}{4y}$ ?

(A)  $\frac{5}{2}x^6y$

(B)  $7x^6y$

(C)  $7x^{11}y$

(D)  $7x^7y^{4/3}$

**SOLUTION**

$$\begin{aligned} \frac{8x^3y}{2xy^2} \cdot \frac{7x^4y^3}{4y} &= \frac{56x^7y^4}{8xy^3} \\ &= \frac{\cancel{8} \cdot 7 \cdot \cancel{x} \cdot x^6 \cdot \cancel{y^3} \cdot y}{\cancel{8} \cdot \cancel{x} \cdot \cancel{y^3}} \\ &= 7x^6y \end{aligned}$$

**Multiply numerators and denominators.**

**Factor and divide out common factors.**

**Simplified form**