

**Check Your Understanding (Lessons 1- 6)**

1. State the lowest common denominator. **DO NOT SIMPLIFY.**

$$\frac{x-5}{18x^2(y+7)(x+2)^3} + \frac{1-x}{12x^5(x+2)^9} \quad \text{LCD: } \underline{\hspace{10em}}$$

2. Identify all non-permissible values. **DO NOT SIMPLIFY.**

$$\frac{m-4}{3a(m-1)} \div \frac{b^2-3b-28}{8m^4n^{10}}$$

3. Simplify and state all non-permissible values.

$$\frac{15x^2y^6z^6}{-27x^7y^2z^{14}}$$

4. Simplify and state all non-permissible values.

$$\text{a) } \frac{24x^3}{35y^5} \cdot \frac{15y^8}{16x^7} \quad \text{b) } \frac{3xyz}{4x^2} \div \frac{-39y^4z^5}{36y^3} \quad \text{c) } \frac{x^2-x}{3x^2-2x-8} \cdot \frac{9x+12}{1-x^2}$$

$$\text{d) } \frac{4-x^2}{x^2-3x+2} \div \frac{2x^2+16x+30}{x^2+4x-5}$$

$$\text{e) } \frac{7}{15x^6z^2} + \frac{11y}{9x^4z^5}$$

$$\text{f) } \frac{3x-2}{x^2+4x-12} - \frac{5}{2x+12}$$

5. Solve the following equations.

$$\text{a) } \frac{5}{24} + \frac{2+x}{3-x} = \frac{1}{4}$$

$$\text{b) } \frac{5x+5}{x+2} + 3x = \frac{x}{x+2}$$

$$\text{c) } \frac{x}{x+3} - \frac{4}{x-2} = \frac{-5x^2}{x^2+x-6}$$