

## Section 6.3 Extra Practice

Wherever applicable, state the non-permissible values for the variables.

1. State the least common denominator.

a)  $\frac{9x+y}{4x} + \frac{3y}{5y}$

b)  $\frac{1}{x+4} - \frac{5}{3x+1}$

c)  $\frac{9}{x^2-36} + \frac{3x}{x-6}$

2. Add or subtract. Express the answers in simplest form.

a)  $\frac{x+1}{3x} + \frac{4x-5}{3x}$

b)  $\frac{4x^2}{x+5} + \frac{x+1}{x+5} - \frac{x^2}{x+5}$

c)  $\frac{7x+6}{(x+2)(x-2)} - \frac{3x-2}{(x+2)(x-2)}$

3. Simplify.

a)  $\frac{a+5}{7a} + \frac{4}{3a^2}$

b)  $\frac{x-4}{5xy} - \frac{3x+1}{y^2}$

c)  $\frac{x+1}{xy^2} + \frac{4}{7xy} - \frac{x-3}{5y^2}$

4. Add or subtract, and express the answers in simplest form.

a)  $\frac{3}{x-5} + \frac{2}{x+7}$

b)  $\frac{3x}{7y} - \frac{x}{7(y+3)}$

c)  $\frac{5x}{x+1} - \frac{x^2+4}{(x+1)(x-1)} + \frac{3}{x-1}$

d)  $\frac{3x}{(x+2)(x-5)} - \frac{x+3}{(x-5)(x+6)}$

5. Simplify.

a)  $\frac{2a}{2a+6} - \frac{a^2+9}{a^2-9}$

b)  $\frac{3y}{y^2-4} + \frac{6y}{y^2+5y+6}$

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

d)  $\frac{x-6}{x^2-11x+28} - \frac{x-5}{x^2-8x+7}$

6. Simplify each rational expression, and then add or subtract. Express the answers in simplest form.

a)  $\frac{8}{3x-18} - \frac{x+1}{x^2-5x-6}$

b)  $\frac{x^2-49}{x^2-8x+7} + \frac{2-2x}{x^2-1}$

c)  $\frac{2x+8}{x^2+5x+6} - \frac{x-9}{(x+3)(x-5)}$

d)  $\frac{2x}{x-3} - \frac{3(x+1)(x-6)}{3x^2+6x-45} + \frac{4}{x+5}$

7. Simplify.

a)  $\frac{\frac{1}{x}+1}{1-\frac{1}{x}}$

b)  $\frac{\frac{x}{x-3}}{4-\frac{x}{x-3}}$

c)  $\frac{\frac{1}{4+h} - \frac{1}{4}}{h}$