

Name \_\_\_\_\_ Date: \_\_\_\_\_ Block \_\_\_\_\_

1. Perform the indicated operation. Simplify your answers where possible. Assume the denominators are not zero.

a.  $\frac{5x}{x+1} + \frac{5}{x+1}$

b.  $\frac{2y}{y-3} - \frac{6}{y-3}$

c.  $\frac{10a}{2a+b} + \frac{5b}{2a+b}$

d.  $\frac{4m-5}{2m+3} - \frac{6m-8}{2m+3}$

e.  $\frac{9x-10}{2x-3} - \frac{11-5x}{2x-3}$

f.  $\frac{-2y}{3-y} - \frac{6}{y-3}$

g.  $\frac{18x}{3x-1} + \frac{6}{1-3x}$

2. Simplify. Assume the denominators are not zero.

a.  $\frac{5}{x} + \frac{2}{x^2}$

b.  $\frac{3}{2x^2y} - \frac{7}{6x}$

c.  $4 - \frac{2}{5a}$

d.  $\frac{7}{10x^2} + \frac{1}{2x^3} - \frac{11}{5x}$

e.  $\frac{3}{x+2} + \frac{5}{2}$

f.  $\frac{4}{a-3} - \frac{1}{a}$

g.  $\frac{3}{a-8} - 2a$

3. Simplify and identify any non-permissible values of the variables.

a.  $\frac{2}{x+5} + \frac{3}{x+2}$

b.  $\frac{4}{x-3} - \frac{2}{x+1}$

c.  $\frac{7}{2(x+3)} - \frac{4}{5(x+3)}$

d.  $\frac{3x}{x-2} - \frac{4x}{x-3}$

e.  $\frac{x+6}{x-3} + \frac{x-4}{x-5}$

f.  $\frac{x+1}{x-2} - \frac{x-1}{x+2}$

g.  $\frac{3m}{2(m-1)} - \frac{5m}{2(m+1)}$

h.  $\frac{8a}{5(a-2)} + \frac{5a-1}{3(a+3)}$

4. A rope of length  $\frac{4}{x+2}$  cm, has a piece  $\frac{3}{x-2}$  cm cut off. What is the length of the remaining piece?

**Answers:**

1a. 5    b. 2    c. 5    d.  $\frac{-2m+3}{2m+3}$     e. 7    f. 2    g. 6    2a.  $\frac{5x+2}{x^2}$     b.  $\frac{9-7xy}{6x^2y}$     c.  $\frac{20a-2}{5a}$

d.  $\frac{-22x^2+7x+5}{10x^3}$     e.  $\frac{5x+16}{2(x+2)}$     f.  $\frac{3a+3}{a(a-3)}$     2g.  $\frac{-2a^2+16a+3}{a-8}$     3a.  $\frac{5x+19}{(x+5)(x+2)}$ ,  $x \neq -5, -2$

b.  $\frac{2x+10}{(x-3)(x+1)}$ ,  $x \neq 3, -1$     c.  $\frac{27}{10(x+3)}$ ,  $x \neq -3$     d.  $\frac{-x^2-x}{(x-2)(x-3)}$ ,  $x \neq 2, 3$     e.  $\frac{2x^2-6x-18}{(x-3)(x-5)}$ ,  $x \neq 3, 5$     f.  $\frac{6x}{(x+2)(x-2)}$ ,  $x \neq 2, -2$

g.  $\frac{-m^2+4m}{(m+1)(m-1)}$ ,  $m \neq 1, -1$     h.  $\frac{49a^2+17a+10}{15(a-2)(a+3)}$ ,  $a \neq -3, 2$     4.  $\frac{x-14}{(x+2)(x-2)}$  cm