Name: _____ Date: _____

BLM 9–4

Section 9.3 Extra Practice

1. Solve each equation algebraically.

a) $\frac{2}{x-1} - 5 = \frac{4}{x-1}$

b) $\frac{3}{x+5} + \frac{1}{2} = \frac{x+3}{x+5}$

c) $\frac{8}{x} + \frac{x+6}{3x} + \frac{x-4}{6x} = \frac{8}{9}$

d) $\frac{x^2+2}{x} = \frac{2x+1}{2}$

2. Solve algebraically. Check your solutions.

a) $x = \frac{13}{x-9} - 3$

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

c) $x + 4 = \frac{4x+2}{x-7}$

d) $x + 3 = \frac{x^2}{2-x}$

3. **a)** Determine the roots of the rational equation $\frac{5}{x} + x - 6 = 0$ algebraically.

b) Graph the rational function $y = \frac{5}{x} + x - 6$ and determine the x-intercepts.

c) Explain the connection between the roots of the equation and the x-intercepts of the graph of the function.

4. Solve each of the following equations by graphing each side of the equation as a separate function.

a) $3x = \frac{6x}{2x-5}$

b) $\frac{17 - 3x + x^2}{x-1} = 2x - 5$

c) $\frac{2x^2 - 16x}{2x-1} = 3x - 2$

5. Solve by rearranging as a single function and then graphing.

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

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

6. Solve each equation algebraically. Give your answers to the nearest hundredth.

a) $x - 1 = \frac{x}{x-4}$

b) $x + 3 = \frac{x+2}{x-1}$

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

7. Determine the approximate solution(s) to each rational equation graphically, to the nearest hundredth.

a) $\frac{2x}{x-1} + 3x = \frac{x-3}{x+1}$

b) $4 - \frac{3}{x-7} = 9 - \frac{x+3}{x}$

8. Solve the equation $\frac{18}{n^2-9} + 1 = \frac{n}{n+3}$ algebraically.

9. It takes James 9 h longer to construct a fence than it takes Carmen. If they work together, they can construct the fence in 20 h. How long would it take each of them, working alone, to construct the fence?