Name: _____

MATH 101

Fall 2021

HW 14: Due 11/09

"Science is a way of thinking much more than it is a body of knowledge."

– Carl Sagan

Problem 1. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

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

Problem 2. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{2}{x+1} + \frac{1}{x^2 - x - 2}$$

Problem 3. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{x}{x+6} + \frac{x-2}{x+3}$$

Problem 4. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{x - 2}{x^2 + x - 2} - \frac{x}{x^2 + 6x + 5}$$

Problem 5. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{2}{x+3} \cdot \frac{x^2 - 2x - 15}{x - 1}$$

Problem 6. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{x+3}{x^2-4x-12} \cdot \frac{x^2-4}{2x^2+5x-3}$$

Problem 7. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{\dfrac{x}{x+1}}{\dfrac{x^2+4x}{x^2+3x+2}}$$

Problem 8. (10pt) Compute the following, being sure to show all your work and simplifying as much as possible:

$$\frac{\dfrac{x^2 + x - 6}{x^2 + 2x - 24}}{\dfrac{2x^2 + 9x + 9}{x^2 + x - 30}}$$