Section 6.4 (Equivalent Fractions)

Simplifying or reducing algebraic expressions is a very important concept in mathematics particularly in the later study of calculus. I will often refer to these algebraic fractions as Rational Expressions; the most common name for algebraic fractions.

The objective for this section is to:

- Simplify or reduce rational expressions

When simplifying algebraic expressions you must:

1. **FACTOR EVERYTHING FIRST**
2. Remove common factors of one

Determine the simplest form of each given fraction.

1. $\dfrac{7a^3}{21a}$

2. $\dfrac{21}{6x-9}$

3. $\dfrac{9x^2}{36x}$

4. $\dfrac{3x+21}{x^2+7x}$

5. $\dfrac{t^2 - 8t - 9}{t^2 + 5t + 4}$

8. $\dfrac{(x-5)}{(5-x)}$

6. $\dfrac{x^2 - 1}{2x^2 - x - 1}$

9. $\dfrac{6 - 5a}{10a - 12}$

7. $\dfrac{25 - p^2}{p^2 + 10p + 25}$

10. $\dfrac{x^2 - y^2}{y^2 - x^2}$

11. Evaluate the fraction $\dfrac{2x^2 + 5xy - 3y^2}{2x^2 + 3xy - 2y^2}$ for the values $x = 2$ and $y = 3$ before and after

reducing it to its simplest form.