

Simplifying Rational Expressions

Rational Expression - a "fraction" with a polynomial in the numerator and in the denominator

Examples:

$$\frac{2x}{x+1} \quad \frac{3}{a+1} \quad \frac{2a^2+5}{4a+1}$$

To simplify rational expressions, we need to fully factor both the numerator and the denominator first!

Simplify the following rational expressions and state any RESTRICTIONS on the variable:

$$1) \quad \frac{12a^3 - 6a^2 - 18a^4}{5a^2}$$

$$2) \quad \frac{a}{3a^2 - 9a}$$

$$3) \quad \frac{5 - 2k}{8k - 20}$$

$$4) \quad \frac{x^2 + 3xy - 10y^2}{x^2 + 8xy + 15y^2}$$

$$5) \quad \frac{m^2 - 4}{3m^2 + 2m - 8}$$

$$6) \quad \frac{6x^2y^4}{-18x^4y}$$

6) $\frac{6x^2y^4}{-18x^4y^3}$