

Simplifying Rational Expressions

Rational expressions are in its simplest form when the numerator and denominator have no common factors (other than ± 1).

We simplify rational expressions the same way we simplify any fractions:
By dividing out common factors.



Simplify these rational expressions:

$$\frac{2r - 4}{r - 2}$$

$$\frac{v^2 - 7v - 30}{v^2 - 5v - 24}$$

$$\frac{v - 5}{v^2 - 10v + 25}$$

Multiplying Rational Expressions

Multiplying Rational Expressions follows the same rules as multiplying numerical fractions.

ie: $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$



Multiply these polynomials:

$$2x(-2x - 3)$$

$$(4p - 1)^2$$

$$(8n + 1)(6n - 3)$$

Multiply and write in simplest form:

$$\frac{3x^2}{5y^2} \cdot \frac{10y^5}{15x^3}$$

Multiply and write in simplest form:

$$\frac{93}{21n} \cdot \frac{34n}{51n}$$

$$\frac{5r + 50}{r + 10} \cdot \frac{r - 2}{5}$$

$$\frac{x}{2x - 6} \cdot \frac{3x - x^2}{2}$$

Dividing Rational Expressions

Dividing Rational Expressions follows the same rules as dividing numerical fractions.

$$\text{ie: } \frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$



Divide and write in simplest form:

$$\frac{7a^2}{7a^3 + 56a^2} \div \frac{2}{a^2 + 7a - 8}$$

Divide and write in simplest form:

$$\frac{6}{28x+4} \div \frac{6}{35x+5}$$

$$\frac{8}{4n^2-16n} \div \frac{1}{n-4}$$

$$\frac{10n}{9} \div \frac{13n^2}{16}$$