Examples

GCF = $12n^2$ 1. $\frac{36n^3 \div 12n^2}{12n^2 \div 12n^2} = \boxed{\frac{3n}{1}}$

GCF = x 2. $\frac{x^2-8x}{x^2-5x-24} \div x = \frac{x(x-8)}{(x+3)(x-8)} = \boxed{\frac{x}{x+3}}$

Diff. of Squares 3. $\frac{x^2-49}{x^2+3x-28} = \frac{(x+7)(x-7)}{(x+7)(x-4)} = \boxed{\frac{x-7}{x-4}}$

GCF = 2 4. $\frac{2x+10}{x^2+3x-10} = \frac{2(x+5)}{(x+5)(x-2)} = \boxed{\frac{2}{x-2}}$

GCF = x 5. $\frac{x^2+5x}{x^2-25} = \frac{x(x+5)}{(x+5)(x-5)} = \boxed{\frac{x}{x-5}}$

D.O.S.

6. $\frac{7x^2+23x+6}{x^2+2x-3} = \frac{(x+3)(7x+2)}{(x+3)(x-1)} = \boxed{\frac{7x+2}{x-1}}$

$7*6 = 42$

1, 42

2, 21 $(7x^2+21x)(2x+6)$

$7x(x+3)\,2(x+3)$

$(x+3)(7x+2)$

Simplify Rational Expressions

10-8-18

Warm-up: factor

1. $x^2+4x-32$
$(x+8)(x-4)$

2. $x^2+10x+16$
$(x+2)(x+8)$

Example of Rational Expression: $\frac{x^2+4x-32}{x^2+10x+16} \cdot \frac{(x+8)(x-4)}{(x+2)(x+8)}$

$= \frac{x-4}{x+2}$

Simplifying Rational Expressions

Definition: a fraction with polynomials

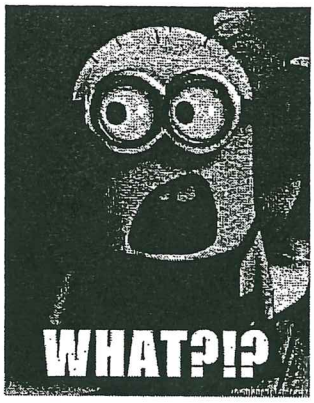
A rational expression is in simplest form when the numerator and denominator have no common factors.

Steps

1. Factor the numerator. * look for GCF!
2. Factor the denominator.
3. Cancel out common factor.
4. If 2 factors are close to canceling, factor out a -1.

Check if factors cancel. $x-4$ and $4-x = -1(x-4)$

5. Check to make sure your final answer is fully simplified.



Watch Out!

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

* Cannot cancel variables or #'s with addition or subtraction between them.