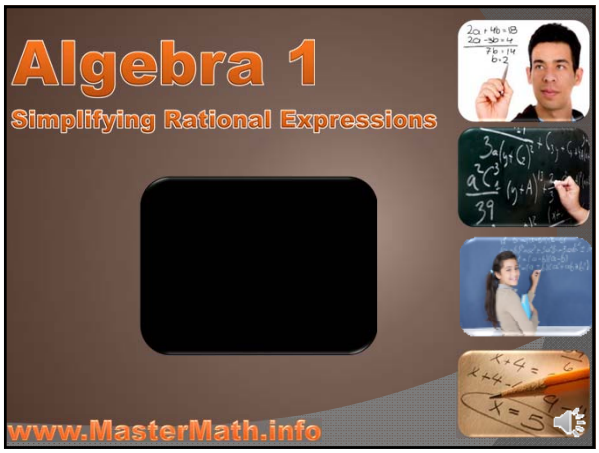
Algebra 1
Simplifying Rational Expressions
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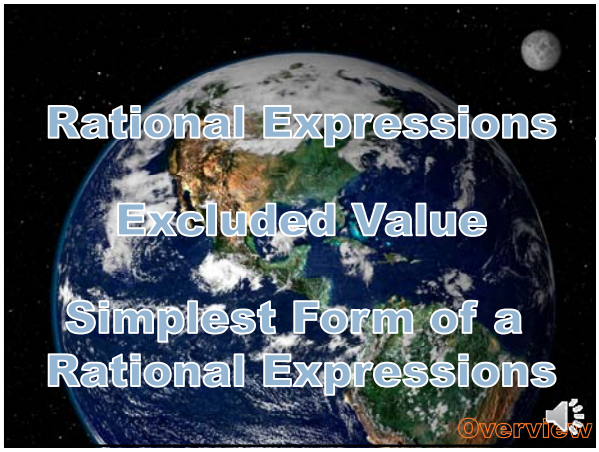
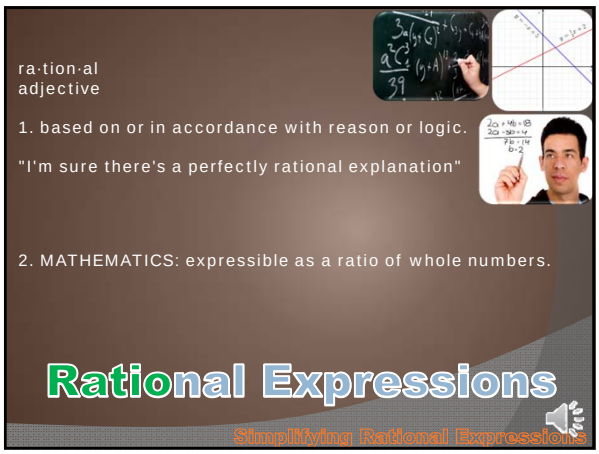
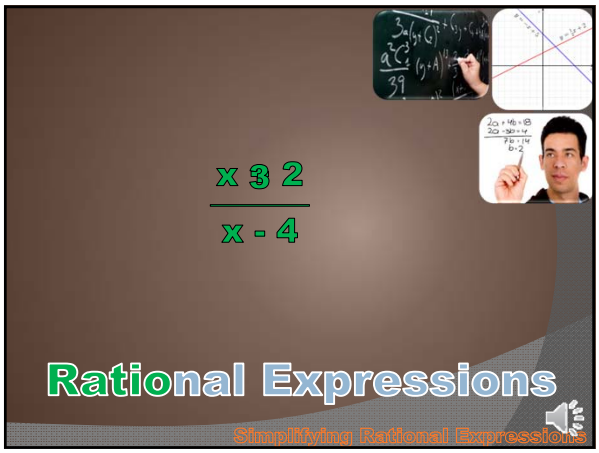
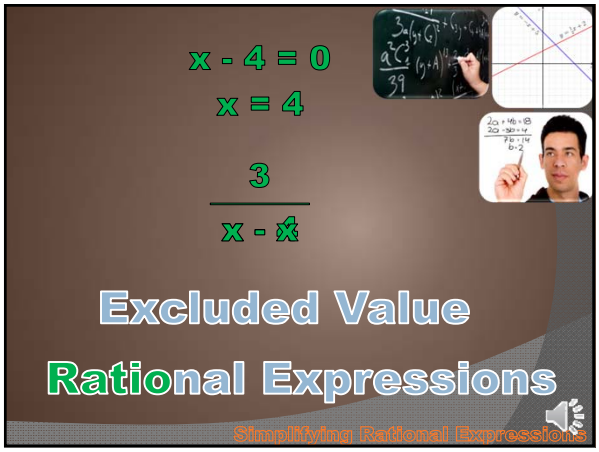
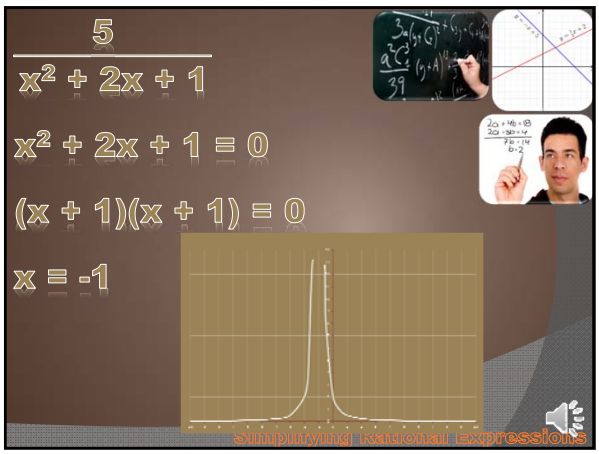

Rational Expressions
Excluded Value
Simplest Form of a Rational Expressions
Overview

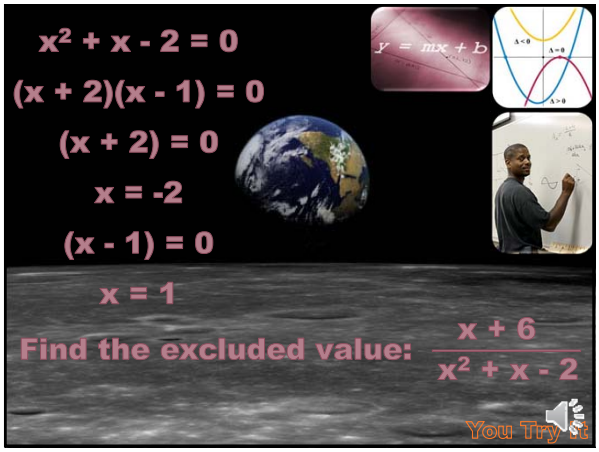

ra·tion·al
adjective
1. based on or in accordance with reason or logic.
"I'm sure there's a perfectly rational explanation"
2. MATHEMATICS: expressible as a ratio of whole numbers.
Rational Expressions
Simplifying Rational Expressions

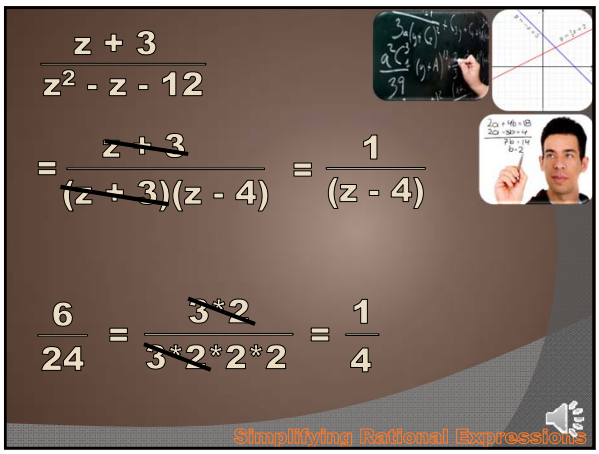

x + 2
x - 4
Rational Expressions
Simplifying Rational Expressions

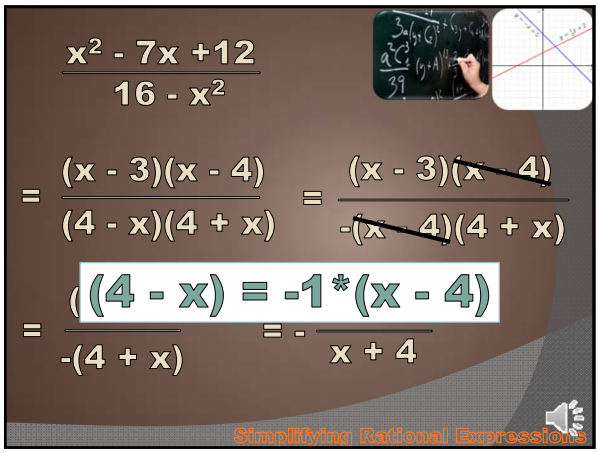

x - 4 = 0
x = 4
3
x - 4
Excluded Value
Rational Expressions
Simplifying Rational Expressions

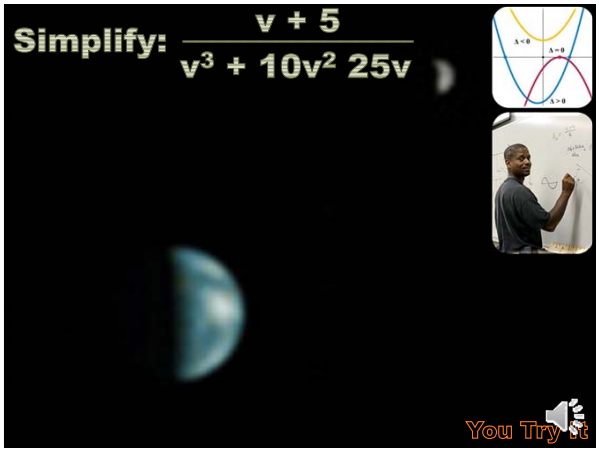

5
x² + 2x + 1
x² + 2x + 1 = 0
(x + 1)(x + 1) = 0
x = -1
Simplifying Rational Expressions

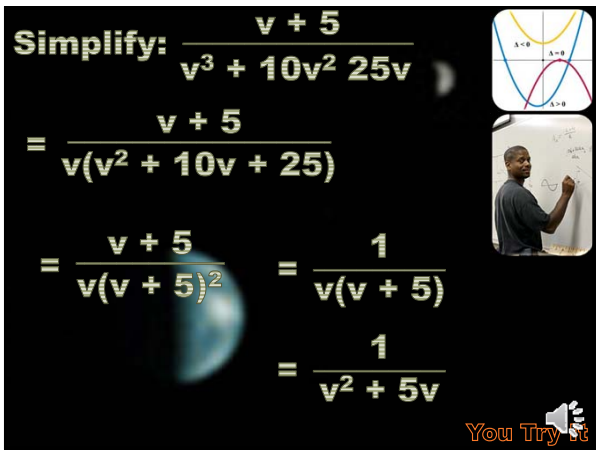

Find the excluded value:
$\frac{x + 6}{x^2 + x - 2}$
You Try It:


$x^2 + x - 2 = 0$
$(x + 2)(x - 1) = 0$
$(x + 2) = 0$
$x = -2$
$(x - 1) = 0$
$x = 1$
Find the excluded value:
$\frac{x + 6}{x^2 + x - 2}$
You Try It:


$\frac{z + 3}{z^2 - z - 12}$
$= \frac{\cancel{z + 3}}{\cancel{(z + 3)}(z - 4)} = \frac{1}{(z - 4)}$
$\frac{6}{24} = \frac{\cancel{3}*2}{\cancel{3}*2*2*2} = \frac{1}{4}$
Simplifying Rational Expressions


$\frac{x^2 - 7x + 12}{16 - x^2}$
$= \frac{(x - 3)(x - 4)}{(4 - x)(4 + x)} = \frac{(x - 3)(x - 4)}{-(x - 4)(4 + x)}$
$(4 - x) = -1*(x - 4)$
$= \frac{(4 - x)}{-(4 + x)} = -\frac{}{x + 4}$
Simplifying Rational Expressions


Simplify: $\frac{v + 5}{v^3 + 10v^2 25v}$
You Try It


Simplify: $\frac{v + 5}{v^3 + 10v^2 25v}$
$= \frac{v + 5}{v(v^2 + 10v + 25)}$
$= \frac{v + 5}{v(v + 5)^2} = \frac{1}{v(v + 5)}$
$= \frac{1}{v^2 + 5v}$
You Try It