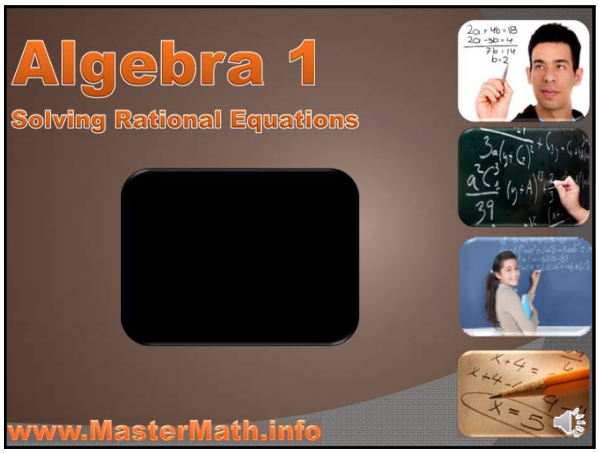
Algebra 1
Solving Rational Equations
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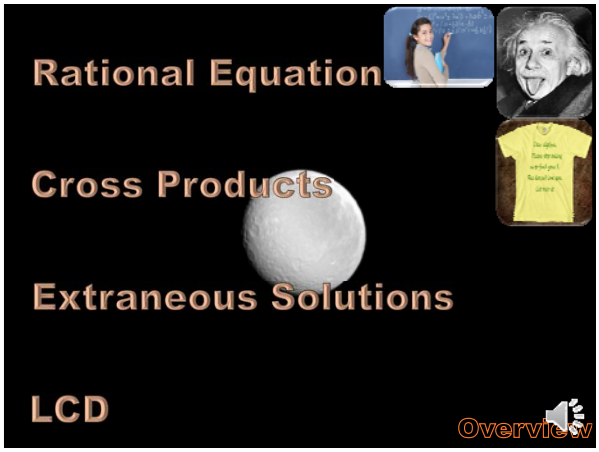
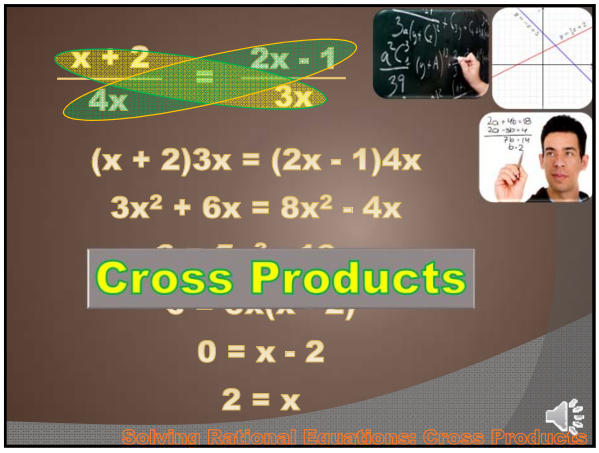
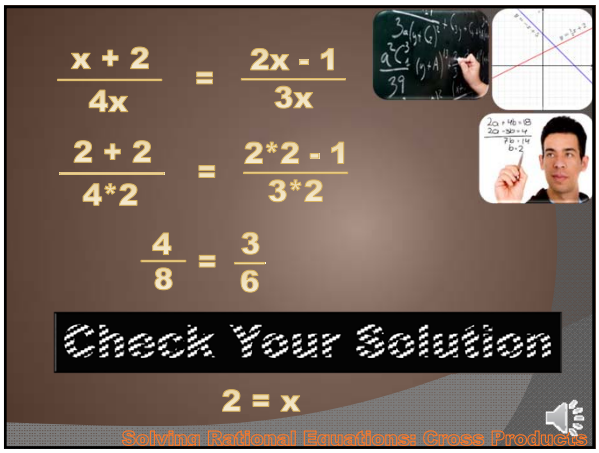
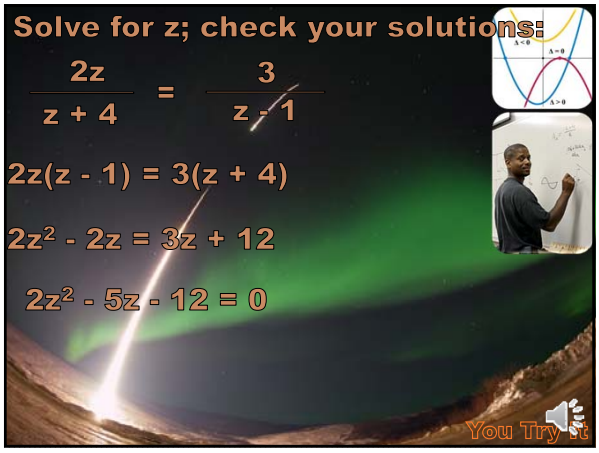
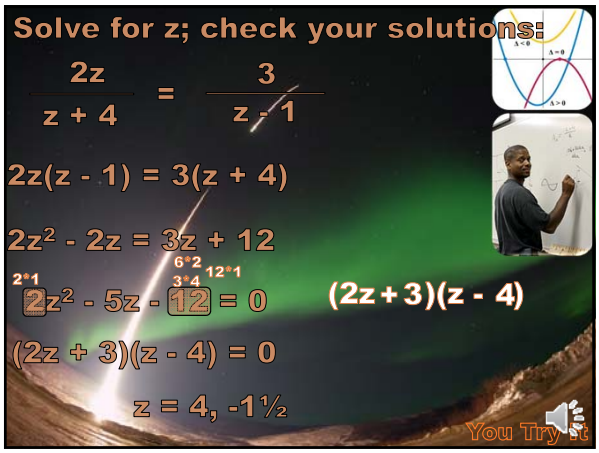

Rational Equation
Cross Products
Extraneous Solutions
LCD
Overview

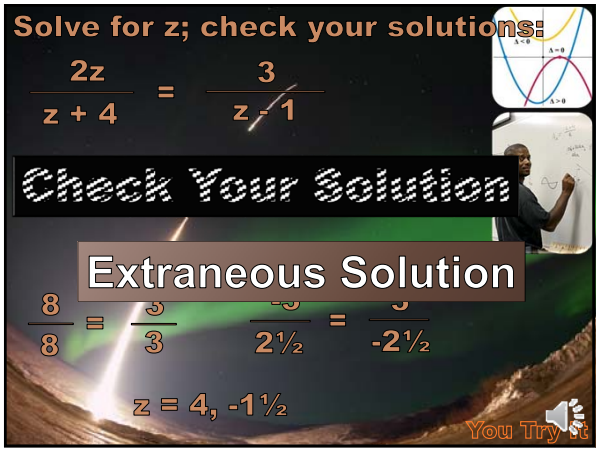

x + 2 / 4x = 2x - 1 / 3x
(x + 2)3x = (2x - 1)4x
3x² + 6x = 8x² - 4x
Cross Products
0 = x - 2
2 = x
Solving Rational Equations: Cross Products

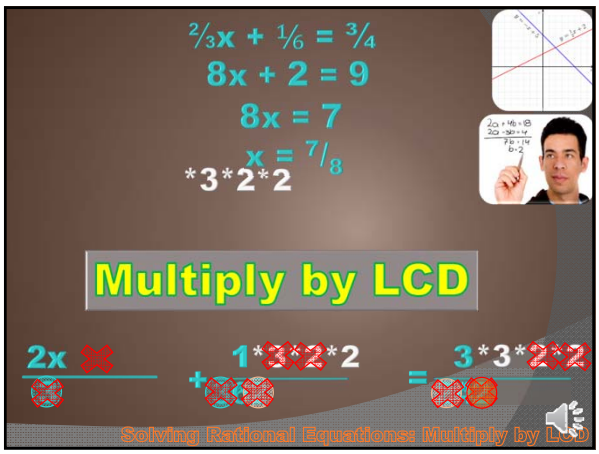

$\frac{x+2}{4x} = \frac{2x-1}{3x}$
$\frac{2+2}{4*2} = \frac{2*2-1}{3*2}$
$\frac{4}{8} = \frac{3}{6}$
Check Your Solution
2 = x
Solving Rational Equations Cross Products


Solve for z; check your solutions:
$\frac{2z}{z+4} = \frac{3}{z-1}$
You Try It


Solve for z; check your solutions:
$\frac{2z}{z+4} = \frac{3}{z-1}$
$2z(z-1) = 3(z+4)$
$2z^2 - 2z = 3z + 12$
$2z^2 - 5z - 12 = 0$
You Try It


Solve for z; check your solutions:
2z / (z + 4) = 3 / (z - 1)
2z(z - 1) = 3(z + 4)
2z² - 2z = 3z + 12
2*1 6*2 3*4 12*1
2z² - 5z - 12 = 0
(2z + 3)(z - 4)
(2z + 3)(z - 4) = 0
z = 4, -1½
You Try It


Solve for z; check your solutions:
2z / (z + 4) = 3 / (z - 1)
Check Your Solution
Extraneous Solution
8/8 = 3/3
2½ = -2½
z = 4, -1½
You Try It


⅔x + ⅙ = ¾
8x + 2 = 9
8x = 7
x = 7/8
*3*2*2
Multiply by LCD
2x
1*2*2
3*3*2*2
Solving Rational Equations: Multiply by LCD

$\frac{2}{3}x + \frac{1}{6} = \frac{3}{4}$

$8x + 2 = 9$

$8x = 7$

$x = \frac{7}{8}$

$\frac{2}{3}(\frac{7}{8}) + \frac{1}{6} = \frac{3}{4}$

$\frac{14}{24} + \frac{1}{6} =$

$\frac{7}{12} + \frac{2}{12} = \frac{9}{12}$

Check Your Solution

Solving Rational Equations: Multiply by LCD

$\frac{1}{b+3} + 2 = \frac{b^2 - 3}{b^2 + 12b + 27}$

$(b + 3) \quad (b + 3)(b + 9)$

$\frac{1}{b+3}(b+3)(b+9) + 2(b+3)(b+9) = \frac{b^2 - 3}{b^2 + 12b + 27}(b+3)(b+9)$

$b + 9 + 2b^2 + 24b + 54 = b^2 - 3$

$b^2 + 25b + 66 = 0 \quad (b + 3)(b + 22) = 0$

$b = -22, -3$

Solving Rational Equations: Multiply by LCD

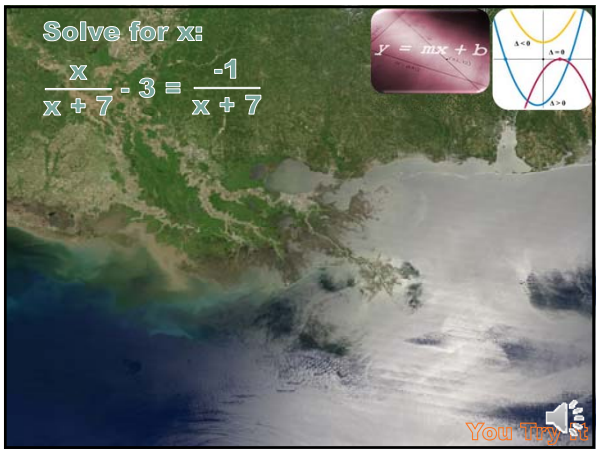
$\frac{1}{b+3} + 2 = \frac{b^2 - 3}{b^2 + 12b + 27}$

Extraneous Solution

Check Your Solution

$b = -22,$ ✗

Solving Rational Equations: Multiply by LCD


Solve for x:
$\frac{x}{x+7} - 3 = \frac{-1}{x+7}$
$y = mx + b$
You Try It:


Solve for x:
$\frac{x}{x+7} - 3 = \frac{-1}{x+7}$
$y = mx + b$
$\frac{x}{x+7}(x+7) - 3(x+7) = \frac{-1}{x+7}(x+7)$
$x - 3x - 21 = -1$
$-2x = 20$
$x = -10$
You Try It: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