Homework Answers

31) $\{-4 \pm 3i\}$

Pp. 231-232

15) f left 3
16) e right 4, reflection x-axis, up 3
17) b right 4, vertical stretch 2, down 1
18) g down 3
19) h left 3, vertical compression 1/2, reflextion x-axis, up 3
20) a right 3
21) c left 3, reflection x-axis, up 4
22) d right 1, vertical stretch 2, down 4

30) a) (-2,-9) b) min value = -9 c) {y|y ≥ -9}
d) decreasing $(-\infty,-2)$ increasing $(-2,\infty)$

34) a) (-6,8) b) max value = 8 c) {y|y ≤ 8}
d) decreasing $(-6,\infty)$ increasing $(-\infty,-6)$

44) Max area = 128 sq. ft. with length of 16 ft. and width of 8 ft.

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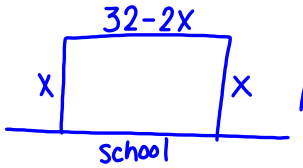

$A = x(32-2x)$

$A = -2x^2 + 32x$

$x = \frac{-32}{-4} = 8$

a.o.s

$x = \frac{-b}{2a}$

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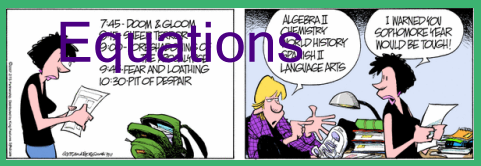
Rational Equations



Zits

By Jerry Scott and Jim Borgman

http://www.arcamax.com/zits/s-234520-160532

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Warm-Up:

Find the DQ: $f(x) = \sqrt{x+1}$

Solve by factor: $8x^2 - 2x - 1 = 0$

$8x^2 - 4x + 2x - 1 = 0$

$4x(2x-1) + 1(2x-1) = 0$

$4x+1=0 \quad | \quad 2x-1=0$

$x = -\frac{1}{4} \quad | \quad x = \frac{1}{2}$

Solve by completing square:

$x^2 - 2x + 6 = 0$

$x^2 - 2x = -6$

$x^2 - 2x + 1 = -6 + 1$

$\frac{1}{2}(-2) = (-1)^2 = 1$

$\sqrt{(x-1)^2} = \sqrt{-5}$

$x - 1 = \pm\sqrt{-5}$

$x = 1 \pm i\sqrt{5}$

Solve by quadratic formula $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$2x^2 - 3x = 4$

$2x^2 - 3x - 4 = 0$

$a=2 \; b=-3 \; c=-4$

$x = \frac{3 \pm \sqrt{(-3)^2 - 4(2)(-4)}}{2(2)}$

$x = \frac{3 \pm \sqrt{41}}{4}$

$\left\{\frac{3+\sqrt{41}}{4}, \frac{3-\sqrt{41}}{4}\right\}$

$\{1+i\sqrt{5}, 1-i\sqrt{5}\}$

factor: $64x^3 - 27$

$(a-b)(a^2+ab+b^2)$

$a = 4x \quad b = 3$

$a^2 = (4x)^2 = 16x^2 \quad b^2 = 9$

$ab = 12x$

$(4x-3)(16x^2+12x+9)$

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Rational Equations: =

Steps:
1. Determine domain restrictions (interested in rational values only)
2. Multiply both sides by the LCD
3. Solve the resulting equation
4. Check for extraneous roots

Sep 30-2:23 PM

Examples:

1. Solving for x cd: $6x$

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

$3x + 12 = 4x + 18$

$-3x \quad -3x$

$x + 12 = 18$

$x = 6$

ck: $\frac{1}{2} + \frac{2}{6} = \frac{1}{3} + \frac{3}{6}$

$\frac{5}{6} = \frac{5}{6}$ ✓

2. $\frac{x}{x-1} - \frac{2}{x} = \frac{4(x-1)}{x(x-1)} - \frac{5(x)(x-1)}{1}$

restrictions: $x \neq 0$

cd: $x(x-3)$

$2(x-3) - 4x = 5x(x-3)$

$2x - 6 - 4x = 5x^2 - 15x$

$-2x - 6 = 5x^2 - 15x$

$+2x+6 \quad +2x+6$

$0 = 5x^2 - 13x + 6$

$p = 30x^2 \quad s = -13x$

$-10x \quad -3x$

$0 = 5x^2 - 10x - 3x + 6$

$0 = 5x(x-2) - 3(x-2)$

$0 = (5x-3)(x-2)$

$5x-3=0 \quad | \quad x-2=0$

$+3 \quad +3 \quad | \quad x = 2$

$\frac{5x}{5} = \frac{3}{5}$

$\left\{2, \frac{3}{5}\right\} \quad x \neq 0, \; x \neq 3$

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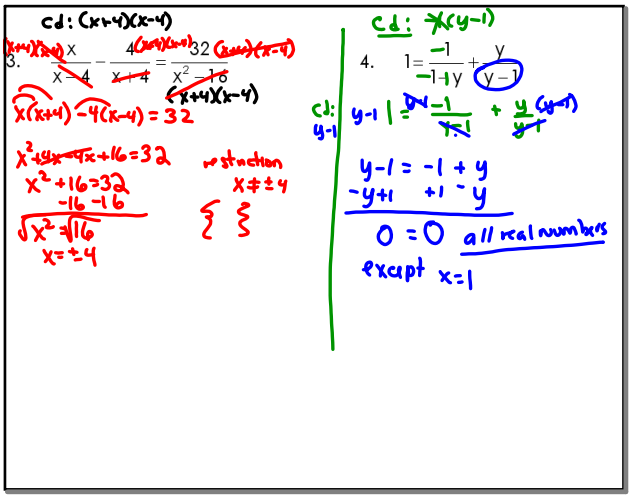

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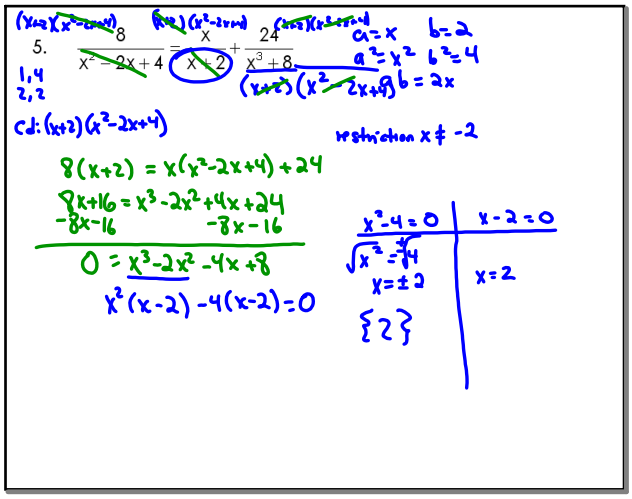

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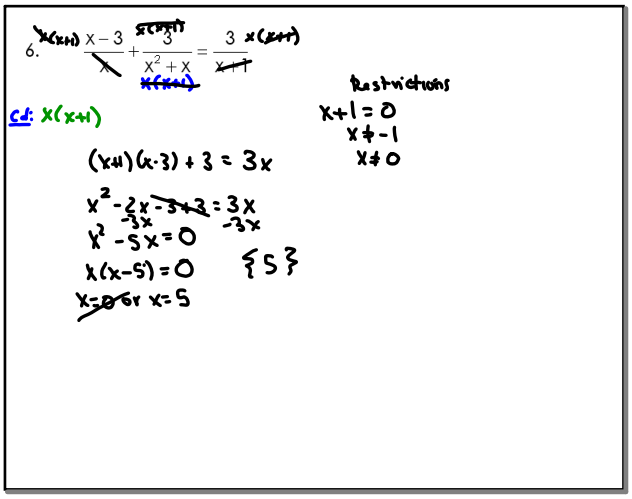

Oct 15-11:09 AM

HW: p. 218 # 34

pp. 241 - 242 # 4, 12, 13, 14, 22

QUIZ Tomorrow - Function Properties ! !

Oct 12-4:53 PM

Oct 6-10:39 AM