Section 6-5 (cont.)
Solving Square Root and Other Radical Equations

-checking for extraneous solutions

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When you raise each side of a equation to a power, it is possible to introduce extraneous solutions.

- solutions that do not make the original equation true.

You must check you answers.

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Solve:

$\sqrt{5x - 1} + 3 = x$

$-3 \quad -3$

$(\sqrt{5x-1})^2 = (x-3)^2 \quad (x-3)$

$5x - 1 = x^2 - 6x + 9$

$-5x + 1 \quad -5x + 1$

$0 = x^2 - 11x + 10$

$0 = (x - 10)(x - 1)$

$x = 10, \cancel{1}$

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How could we check our answer from the previous question on a graph?

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If the equation contains more than one radical expressions, isolate one of them, and then eliminate it. Isolate the more complicated one first. In the resulting equation, simplify before eliminating the second radical.

Aug 18-2:52 PM

Solve:

$\sqrt{5x + 4} - \sqrt{x} = 4 \quad +\sqrt{x}$

$+\sqrt{x}$

$(\sqrt{5x+4})^2 = (4 + \sqrt{x})^2$

$5x + 4 = 16 + 8\sqrt{x} + x$

$-x \quad -16 \quad -16$

$(4x - 12)^2 = (8\sqrt{x})^2$

$16x^2 - 96x + 144 = 64x$

$-64x \quad -64x$

$16x^2 - 160x + 144 = 0$

$16(x^2 - 10x + 9) = 0$

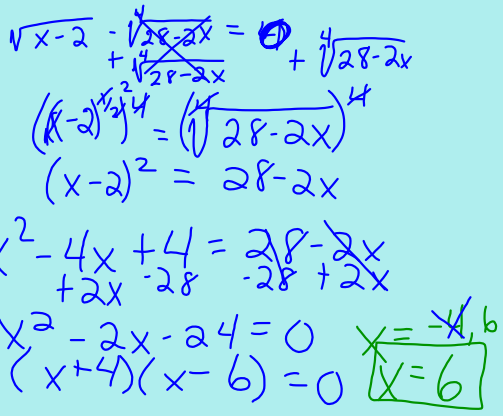
$16(x - 9)(x - 1) = 0$

$x = 9, \cancel{1}$

Aug 18-2:52 PM

#40 from pg. 395

$(x-2)^{\frac{1}{2}} - (28-2x)^{\frac{1}{4}} = 0$



Feb 19-10:50 AM

Hwk: pg. 396 - 397
#26 - 46 (4th), 60, 64, 66, 70

Aug 18-2:52 PM