

6-5 Solving Square Root and other Radical Equations~**B.4 - Day 2**

Extraneous Solution: any solution to an equation that does not make the original statement true.

Ex. Solve. Check your results.

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

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

$$\underset{-5x+1}{5x-1} = \underset{-5x+1}{x^2-6x+9}$$

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

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

$x=10$, ~~$x=1$~~

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Ex. Solve. Check your results.

$$(x-5)^2 = (\sqrt{-10x+29})^2$$

$$\underset{+10x-29}{x^2-10x+25} = \underset{+10x-29}{-10x+29}$$

$$x^2 - 4 = 0$$

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

~~$x=2$~~
 ~~$x=-2$~~

No Solution

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Problem 5 Solving an Equation With Two Radicals

What is the solution of $\sqrt{2x+1} - \sqrt{x} = 1$

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What is the solution of $\sqrt{5x+4} - \sqrt{x} = 4$

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

$$\begin{array}{r} 5x+4 \\ \underline{-x-16} \end{array} = \begin{array}{r} x+8\sqrt{x} \\ \underline{-x} \end{array} + \begin{array}{r} 16 \\ \underline{-16} \end{array}$$

$$\frac{4x-12}{4} = \frac{8\sqrt{x}}{4}$$

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

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

$$\begin{array}{r} +\sqrt{x} \\ \underline{+\sqrt{x}} \end{array}$$

$$\begin{array}{r} x^2-6x+9 \\ \underline{-4x} \end{array} = \begin{array}{r} 4x \\ \underline{-4x} \end{array}$$

$$x^2-10x+9=0$$

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

$$\boxed{x=9}$$

$$x=1$$

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