

January 20, 2017

$$\sqrt{x+5} - 16 = 0$$

$$\left(\sqrt{x+5}\right)^2 = (16)^2$$

$$x+5 = 256$$

$$x = 251$$


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$$\sqrt{251+5} = 16$$

$$\sqrt{256} = 16$$

$$16 = 16 \checkmark$$

Jan 20-9:53 AM

$$+\sqrt{x-2} + 4 = x$$

$$\left(\sqrt{x-2}\right)^2 = (x-4)^2$$

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

FOIL

$$x-2 = x^2 - 8x + 16$$

$$0 = x^2 - 9x + 18$$


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$$x^2 - 9x + 18 = 0$$

$$x^2 - 9x + \frac{81}{4} = -\frac{18}{4} + \frac{81}{4}$$

$$\left(x - \frac{9}{2}\right)^2 = \frac{-18 + 81}{4}$$

$$\left(-\frac{9}{2}\right)^2 \sqrt{\left(x - \frac{9}{2}\right)^2} = \sqrt{\frac{9}{4}}$$

$$x - \frac{9}{2} = \pm \sqrt{\frac{9}{4}} = \pm \frac{3}{2}$$

$$x = \frac{9}{2} \pm \frac{3}{2}$$

$$= \frac{9 \pm 3}{2}$$

$$x = \frac{12}{2} = 6 \quad \text{or} \quad x = \frac{6}{2} = 3$$

$$\{6, 3\}$$

Jan 20-11:17 AM

$$6x^2 + 19x - 7 = 0$$

$$6x^2 + 21x - 2x - 7 = 0 \quad 6(-7) = -42$$

$$3x(2x+7) - 1(2x+7) = 0 \quad \begin{array}{c} 19 \\ 21 \end{array} \quad \begin{array}{c} + \\ - \end{array}$$

$$(2x+7)(3x-1) = 0$$

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$$\frac{-4 \pm \sqrt{-32}}{2}$$

$$= \frac{-4}{2} \pm \frac{\sqrt{-32}}{2}$$

$$= -2 \pm \frac{i\sqrt{32}}{2}$$

$$= \frac{-2 \pm i\sqrt{16 \cdot 2}}{2}$$

$$= \frac{-2 \pm i\sqrt{16} \cdot \sqrt{2}}{2}$$

$$= \frac{-2 \pm i \cdot 4 \cdot \sqrt{2}}{2}$$

$$= -2 \pm i\sqrt{2}$$

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$$(x-r_1)(x-r_2) = 0$$

Zero Product

$$\textcircled{1} x = r_1$$

$$\textcircled{2} x = r_2$$


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$$\left\{-\frac{1}{4}, -\frac{1}{2}\right\}$$

$$\textcircled{1} x = -\frac{1}{4}$$

$$x + \frac{1}{4} = 0$$

$$\textcircled{2} x = -\frac{1}{2}$$

$$x + \frac{1}{2} = 0$$

$$\left(x + \frac{1}{4}\right)\left(x + \frac{1}{2}\right) = 0$$

FOIL

$$x^2 + \left(\frac{1}{4} + \frac{1}{2}\right)x + \frac{1}{8} = 0$$

$$x^2 + \frac{3}{4}x + \frac{1}{8} = 0$$

$$x^2 + \frac{3}{4}x + \frac{1}{8} = 0$$

Jan 20-12:29 PM