

November 3, 2015

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

Subtract Variable terms

$$x^2 - 6x = -2$$

① $-6 \cdot \frac{1}{2} = -3$
 ② $(-3)^2 = 9$ added to both sides

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

Factor

$$\sqrt{(x-3)^2} = \pm\sqrt{7}$$

Use the square root property

$$x - 3 = \pm\sqrt{7}$$

$$x = \pm\sqrt{7} + 3$$

ok

$$x = -\sqrt{7} + 3$$

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

$$(-\sqrt{7} + 3)(-\sqrt{7} + 3) + 2 = 0$$

$$(-\sqrt{7} + 3)(-\sqrt{7} + 3) + 6\sqrt{7} - 18 + 2 = 0$$

$$7 - 6\sqrt{7} + 9 = 7$$

$$0: (-\sqrt{7})(3) = -3\sqrt{7}$$

$$+ : (-3)(-\sqrt{7}) = +3\sqrt{7}$$

$$+ : (-3)(-3) = 9$$

$$16 - 6\sqrt{7} + 6\sqrt{7} - 18 + 2 = 0$$

$$-2 + 2 = 0$$

$$0 = 0$$

Nov 3-10:01 AM

$$x^2 - 5x + 4 = 0$$

already a "1"!

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

① $-5 \cdot \frac{1}{2} = -\frac{5}{2}$
 ② $(-\frac{5}{2})^2 = \frac{25}{4}$ add to both sides

$$x^2 - 5x + \frac{25}{4} = -4 + \frac{25}{4}$$

Factor

$$(x - \frac{5}{2})^2 = \frac{-16 + 25}{4} = \frac{9}{4}$$

$$\sqrt{(x - \frac{5}{2})^2} = \pm\sqrt{\frac{9}{4}}$$

$$x - \frac{5}{2} = \pm\sqrt{\frac{9}{4}} = \pm\frac{3}{2}$$

$$x = \pm\frac{3}{2} + \frac{5}{2}$$

Continue to simplify

① $x = \frac{8}{2} = 4$

② $x = \frac{2}{2} = 1$

Nov 3-10:15 AM

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

$$x^2 + 7x = 2$$

① $7 \cdot \frac{1}{2} = \frac{7}{2}$
 ② $(\frac{7}{2})^2 = \frac{49}{4}$

$$x^2 + 7x + \frac{49}{4} = \frac{2}{1} + \frac{49}{4}$$

$$(x + \frac{7}{2})^2 = \frac{8 + 49}{4} = \frac{57}{4}$$

$$\sqrt{(x + \frac{7}{2})^2} = \pm\sqrt{\frac{57}{4}} = \pm\frac{\sqrt{57}}{2}$$

$$x + \frac{7}{2} = \pm\frac{\sqrt{57}}{2}$$

$$x = \pm\frac{\sqrt{57}}{2} - \frac{7}{2}$$

ok

$$(\frac{\sqrt{57}-7}{2})^2 - 2 = 0$$

$$(\frac{\sqrt{57}-7}{2})(\frac{\sqrt{57}-7}{2}) + 7\sqrt{57} - 49 - 2 = 0$$

$$\frac{57 - 14\sqrt{57} + 49}{4} + \frac{7\sqrt{57} - 49}{2} - 2 = 0$$

$$\frac{106 - 14\sqrt{57} + 7\sqrt{57} - 49}{4} - 2 = 0$$

$$\frac{106 - 7\sqrt{57} - 49}{4} - 2 = 0$$

$$\frac{57 - 7\sqrt{57}}{4} - 2 = 0$$

$$\frac{57 - 7\sqrt{57}}{4} - 2 = 0$$

$$\frac{57 - 7\sqrt{57}}{4} - 2 = 0$$

Nov 3-10:23 AM

$$2x^2 + 4x + 5 = 0$$

Not a "1"!

$$\frac{2x^2}{2} + \frac{4x}{2} + \frac{5}{2} = \frac{0}{2}$$

$$x^2 + 2x + \frac{5}{2} = 0$$

Subtract

$$x^2 + 2x = -\frac{5}{2}$$

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

$$x^2 + 2x + 1 = -\frac{5}{2} + 1$$

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

$$x + 1 = \pm\sqrt{-\frac{3}{2}} = \pm\frac{\sqrt{-3}}{\sqrt{2}}$$

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

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

Nov 3-10:45 AM