

April 14, 2015
 $ax^2 + bx + c = 0$

#1) $x^2 - 11 = 0$
 $\sqrt{x^2} = \pm\sqrt{11}$
 $(\sqrt{11})^2 - 11 = 0$ $x = \pm\sqrt{11}$
 $11 - 11 = 0$
 $0 = 0 \checkmark$

Apr 14-9:53 AM

$\sqrt{(7x+3)^2} = \pm\sqrt{0}$
 $= \pm 0 = 0$

$7x + 3 = 0$
 $7x = -3$
Ch $x = -\frac{3}{7}$

$(7(-\frac{3}{7}) + 3)^2 = 0$
 $(-3 + 3)^2 = 0$
 $(0)^2 = 0$
 $0 = 0 \checkmark$

Apr 14-10:00 AM

$(x-3)^2 + 5 = 0$
 $\sqrt{(x-3)^2} = \pm\sqrt{-5}$
 $x-3 = \pm i\sqrt{5}$

Ch $x = 3 \pm i\sqrt{5}$

$(3 - i\sqrt{5} + 3)^2 + 5 = 0$
 $(-i\sqrt{5})^2 + 5 = 0$
 $i^2 \cdot 5 + 5 = 0$
 $(-1) \cdot 5 + 5 = 0$
 $-5 + 5 = 0$
 $0 = 0 \checkmark$

Apr 14-10:03 AM

$(3x-2)^2 - 7 = 0$
 $(3x-2)^2 = 7$
 $3x-2 = \pm\sqrt{7}$
 $3x = 2 \pm\sqrt{7}$
Ch $x = \frac{2 \pm\sqrt{7}}{3}$

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

Apr 14-10:05 AM

② Completing the Square

* Perfect Square Trinomial
 $(x+3)^2 = (x+3)(x+3)$
 $= x^2 + 3x + 3x + 9$
 $= x^2 + 6x + 9$
Perfect Square Trinomial

$(x-5)^2 = (x-5)(x-5)$
 $= x^2 - 10x + 25$

$(x-6)^2 = x^2 - 12x + 36$
 $(x + \frac{3}{4})^2 = x^2 + \frac{6}{8}x + \frac{9}{16}$
 $(x-11)^2 = x^2 - 22x + 121$

Apr 14-10:07 AM

Completing the Square Steps

- ① The "a" coefficient must be "1"!
 $1x^2 - 4x - 1 = 0$
- ② Isolate variable terms
 $x^2 - 4x = 1$
- ③ Use Two-Step process
 a) $-4 \cdot \frac{1}{2} = -2 = (-2)$
 b) $(-2)^2 = 4$ *add to both sides of the equation*
- ④ $x^2 - 4x + 4 = 1 + 4$
Perfect Square Trinomial
 $(x-2)^2 = 5$
- ⑤ Use Square Root Property
 $\sqrt{(x-2)^2} = \pm\sqrt{5}$
 $x-2 = \pm\sqrt{5}$
 $x = 2 \pm\sqrt{5}$

Apr 14-10:14 AM

$$x = 2 \pm \sqrt{5}; \quad x^2 - 4x - 1 = 0$$

$$(2 + \sqrt{5})^2 - 4(2 + \sqrt{5}) - 1 = 0$$

FOIL

$$(2 + \sqrt{5})(2 + \sqrt{5}) - 8 - 4\sqrt{5} - 1 = 0$$

$$4 + 4\sqrt{5} + 5 - 8 - 4\sqrt{5} - 1 = 0$$

$$0 = 0 \checkmark$$

Apr 14-10:29 AM

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

$$x^2 - 3x = -2$$

a.) $-3 \cdot \frac{1}{2} = -\frac{3}{2}$

b.) $(-\frac{3}{2})^2 = \frac{9}{4}$ *add to both sides*

$$x^2 - 3x + \frac{9}{4} = -2 + \frac{9}{4}$$

FOIL

$$(x - \frac{3}{2})^2 = \frac{-8 + 9}{4} = \frac{1}{4}$$

$$\sqrt{(x - \frac{3}{2})^2} = \pm \sqrt{\frac{1}{4}}$$

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

$$x = \frac{3}{2} \pm \frac{1}{2}$$

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

② $x = \frac{3-1}{2} = \frac{2}{2} = 1$

Apr 14-10:34 AM

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

↑
Make a "1"

$$\frac{2}{2}x^2 - \frac{7}{2}x + \frac{6}{2} = \frac{0}{2}$$

Now a "1"

$$x^2 - \frac{7}{2}x + 3 = 0$$

$$x^2 - \frac{7}{2}x = -3$$

a.) $-\frac{7}{2} \cdot \frac{1}{2} = -\frac{7}{4}$

b.) $(-\frac{7}{4})^2 = \frac{49}{16}$ *add to both sides*

$$x^2 - \frac{7}{2}x + \frac{49}{16} = -3 + \frac{49}{16} = \frac{1}{16}$$

FOIL

$$(x - \frac{7}{4})^2 = \frac{1}{16}$$

$$x - \frac{7}{4} = \pm \sqrt{\frac{1}{16}} = \pm \frac{1}{4}$$

$$x = \frac{7}{4} \pm \frac{1}{4}$$

① $x = \frac{7+1}{4} = \frac{8}{4} = 2$

② $x = \frac{7-1}{4} = \frac{6}{4} = \frac{3}{2}$

Apr 14-10:41 AM

Do 11.1 #11 - #20

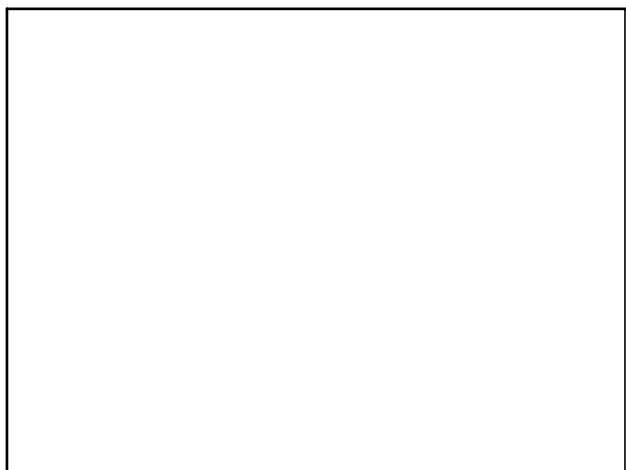
Due Friday

Complete the Square
on

$$ax^2 + bx + c = 0$$

& Check!

Apr 14-10:48 AM



Apr 14-10:48 AM