

January 25, 2016

* Quiz #1 - Friday

Completing the Square

$ax^2 + bx + c = 0$

Quadratic equation
(Standard Form)

$A = 4.4$
 $= 16 \cdot \frac{1}{4}$
 $2+2=4$

$(x+2)$
 $(x+2)$

$(x+2)(x+2) = (x+2)^2$

FOIL

$x^2 + 2x + 2x + 4$
 $x^2 + 4x + 4 = (x+2)^2$

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#1) $x^2 - 38x + c$

(a) $-\frac{38}{2} \cdot \frac{1}{2} = \frac{-19}{1} = -19$

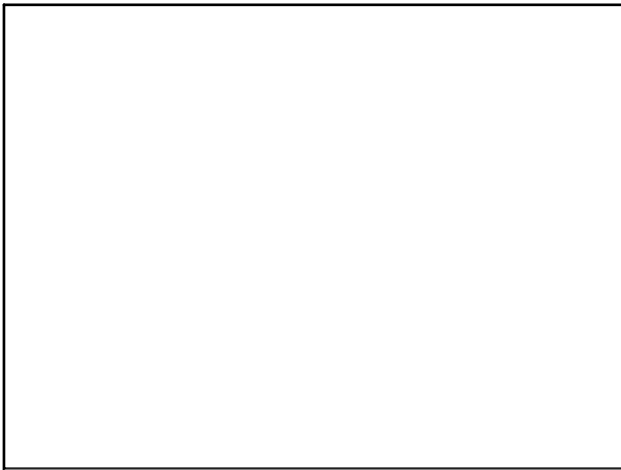
(b) $(-19)^2 = 361$ add to both sides

$x^2 - 38x + 361 = c$

Perfect Square Trinomial

$(x-19)^2 = (x-19)(x-19)$
 $= x^2 - 19x - 19x + 361$
 $= x^2 - 38x + 361$

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#2) $x^2 + 6x + 8 = 0$

Steps for Completing the Square

- Make sure the coefficient of x^2 is a "one". If not, divide or factor-out value from all terms.
- Move "c" to other side.
 $x^2 + 6x = -8$
- Complete the square on "x" term.
 $x^2 + 6x = -8$
(a) $\frac{6}{2} = 3$
(b) $(3)^2 = 9$ ← add to both sides
 $x^2 + 6x + 9 = -8 + 9$
 $(x+3)^2 = 1$
- Use Square Root Property to solve.
 $\sqrt{(x+3)^2} = \pm\sqrt{1}$
 $x+3 = \pm 1$
 $x = \pm 1 - 3$
(a) $x = -2$
(b) $x = -4$
- Check

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#1) $p^2 + 14p - 38 = 0$

$p^2 + 14p = 38$

(a) $14 \cdot \frac{1}{2} = 7$

(b) $(7)^2 = 49$

$p^2 + 14p + 49 = 38 + 49$

PSOT

$\sqrt{(p+7)^2} = \pm\sqrt{87}$

$p+7 = \pm\sqrt{87}$

$p = -7 \pm \sqrt{87}$

$(-7 + \sqrt{87})^2 + 14(-7 + \sqrt{87}) - 38 = 0$

$49 - 14\sqrt{87} + 87 - 98 + 14\sqrt{87} - 38 = 0$

$136 - 98 - 38 = 0$
 $38 - 38 = 0$
 $0 = 0 \checkmark$

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