# Completing the Square Day 2

## Agenda

Warm-Up

HW Check

Notes

HW #1-6

## Reminders

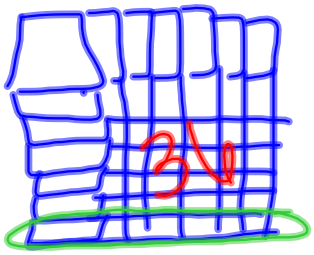
Grades must be made up by 4:10 today.

Extra credit due by 9:00AM Thursday.

Turn in bathroom passes!!

## Warm-Up Tuesday

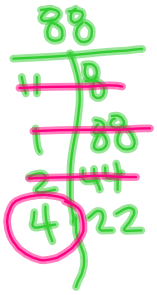
1. Draw the tiles & complete the square for $x^2 + 12x$




$x^2+12x+36$

$(x+6)(x+6) = (x+6)^2$

2. Simplify the radical $\sqrt{88}$




$\sqrt{4 \cdot 22}$

$\sqrt{4} \cdot \sqrt{22}$

$2\sqrt{22}$

# Questions, Comments, Concerns?

Algebra 1 Unit 8 Completing the Square Day 1

**Practice – Completing the Square Day 1**

**Name** _____ **Date** _____ **Period** _____

1. Draw a tiles to represent the polynomial $x^2 + 10x$.

2. How many small "1" squares would you use to complete the square shape?

3. What is the polynomial that represents the completed square shape?

4. Using what you know in questions #1-3, use completing the square to solve the equation $x^2 + 10x = 11$.

**Solve by completing the square.**

5. $x^2 - 8x - 1 = 8$

6. $x^2 + 4x = 12$

# Completing the Square Day 2

Solve by completing the square.

1. $x^2 - 4x - 5 = 0$

$+5 \quad +5$

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

$\sqrt{(x-2)^2} = \sqrt{9}$

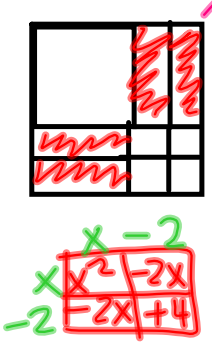
$x - 2 = \pm 3$

$x - 2 = 3$ AND $x - 2 = -3$

$+2 \quad +2 \qquad +2 \quad +2$

$x = 5 \qquad x = -1$

$\{-1, 5\}$






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

$-2 \quad -2$

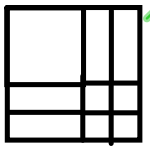
$x^2 + 4x + 4 = -2 + 4$

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

$x + 2 = \pm\sqrt{2}$

$-2 \quad -2$

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



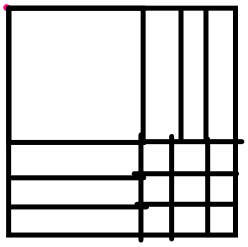
# Completing the Square Day 2

What is a quick way to find out what number completes the square?

$ax^2 + bx + c$

$\left(\frac{b}{2}\right)^2$ completes the square

ex $x^2+6x$



# Completing the Square Day 2

Solve by completing the square.

3. $2x^2 - 8x - 24 = 0$

$+24 \quad +24$

$2x^2 - 8x = 24$

$2(x^2 - 4x + 4) = 24 + 2(4)$

$\left(\frac{-4}{2}\right)^2$

$\frac{2(x-2)^2}{2} = \frac{32}{2}$

$\sqrt{(x-2)^2} = \pm\sqrt{16}$

$x - 2 = \pm 4$

$x - 2 = 4$ AND $x - 2 = -4$

$+2 \quad +2 \qquad +2$

$\{6, -2\}$

4. $3x^2 + 6x - 9 = 0$

$+9 \quad +9$

$3x^2 + 6x = 9$

$\frac{3(x^2 + 2x)}{3} = \frac{9}{3}$

$x^2 + 2x + 1 = 3 + 1$

$\left(\frac{2}{2}\right)^2$

$\sqrt{(x+1)^2} = \sqrt{4}$

$x + 1 = \pm 2$

$x + 1 = 2$ AND $x + 1 = -2$

$-1 \quad -1 \qquad -1$

$\{1, -3\}$

# Completing the Square Day 2

Solve by completing the square.

5. $3x^2 + 7x = 36 + 2x^2 + 3x$

$-2x^2$ $-2x^2$

$x^2 + 7x = 36 + 3x$

$-3x$ $-3x$

$x^2 + 4x + \_ = 36 + \_$

finish like normal.

6. $2x^2 + 8 = -6x + x^2$

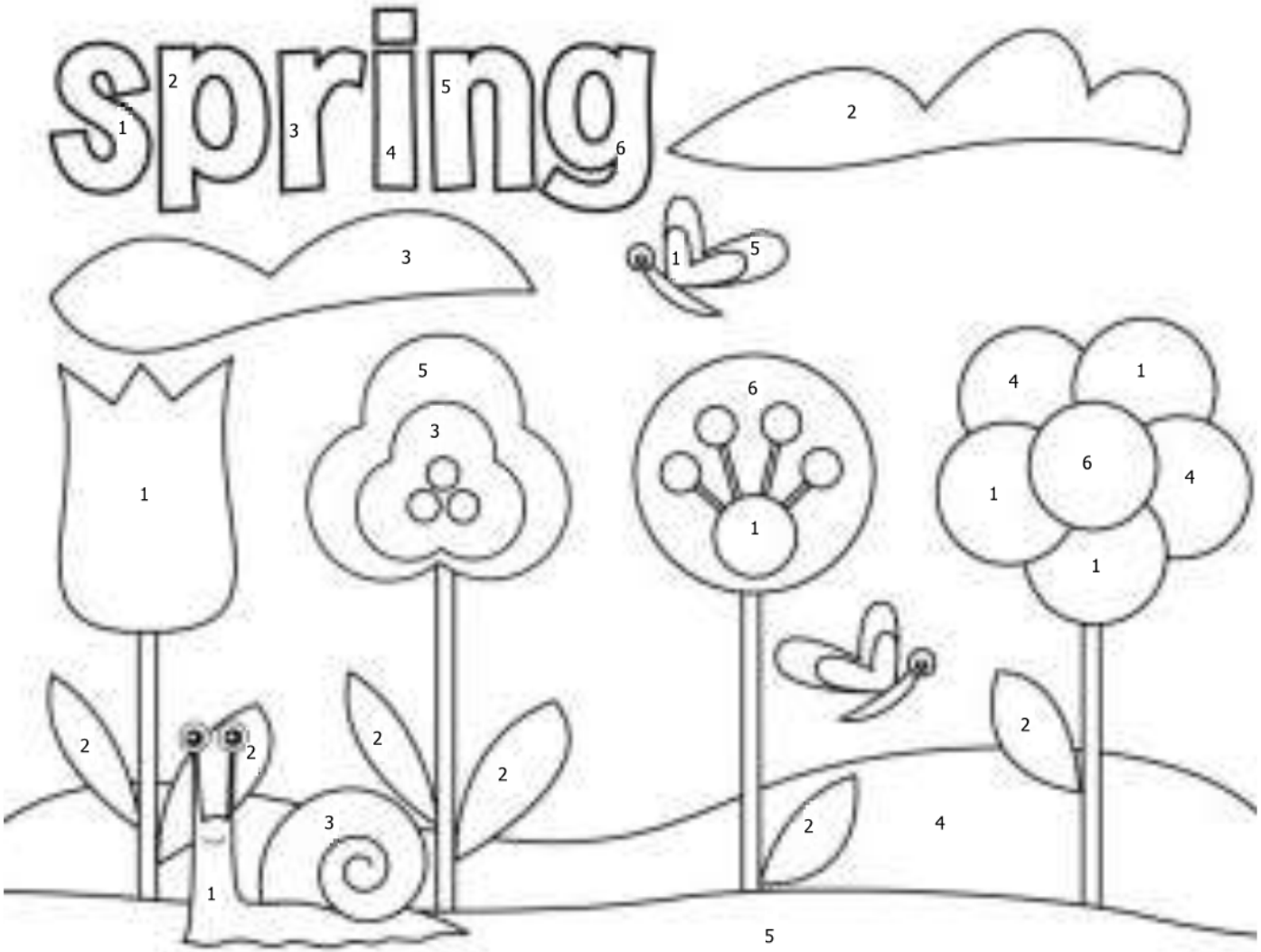
I - Unit 8 Completing the Square Day 2

**ctivity – Solving Quadratics by Completing the Square Day 2**

**e problem and choose which answers are correct. The correct answer corresponds with a number and color on the sheet. Color everything with the number 1 with either red or brown depending on which answer you get.**

| # | Complete the Square | Answer 1 | Answer 2 |
|---|---|---|---|
| 1 | $x^2 + 4x - 12 = 0$ | $-2,6$ Red | $-6,2$ Brown |
| 2 | $2x^2 + 12x = 14$ | $-7,1$ Light Brown | $-1,7$ Orange |
| 3 | $x^2 - 3 = 2x$ | $-1,3$ Yellow | $-3,1$ Orange |
| 4 | $x^2 + 3 = 10x + 5$ | $x = 5 \pm \sqrt{27}$ Yellow | $x = 5 \pm \sqrt{30}$ Orange |
| 5 | $2x^2 - 6x = x^2 - 4$ | $-3 \pm \sqrt{5}$ Orange | $3 \pm \sqrt{5}$ Red |
| 6 | $3x^2 + 12x + 81 = 15$ | No real solutions Red | $-2 \pm 2\sqrt{2}$ Brown |

Algebra I - Unit 8 Completing the Square Day 2



# HW Help: Completing the Square Day 2

No work = no credit = no kidding!


(possibly the least spring-like possible)