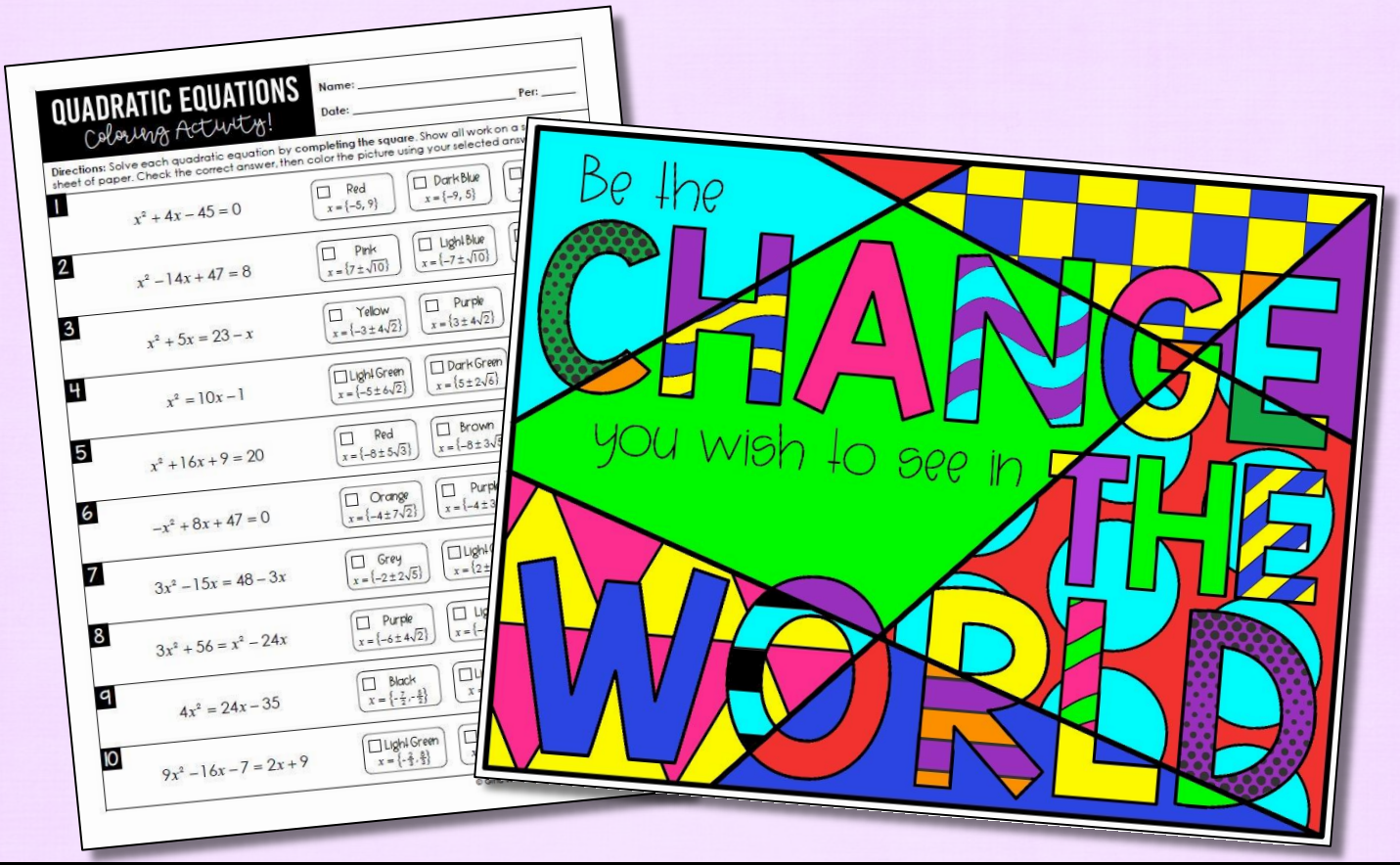


SOLVING QUADRATICS

by completing the square

COLORING ACTIVITY

Created by: ALL THINGS ALGEBRA®

SOLVING QUADRATICS EQUATIONS

(BY COMPLETING THE SQUARE)

Coloring Activity

Objective: To practice solving quadratic equations by completing the square. Most all problems are not written in standard form. Half of the problems require that students factor out "a", however, "b" is always an even number to make completing the square easier. This activity includes both **rational and irrational solutions.** Some rational solutions include fractions. All irrational solutions are written in simplest radical form.

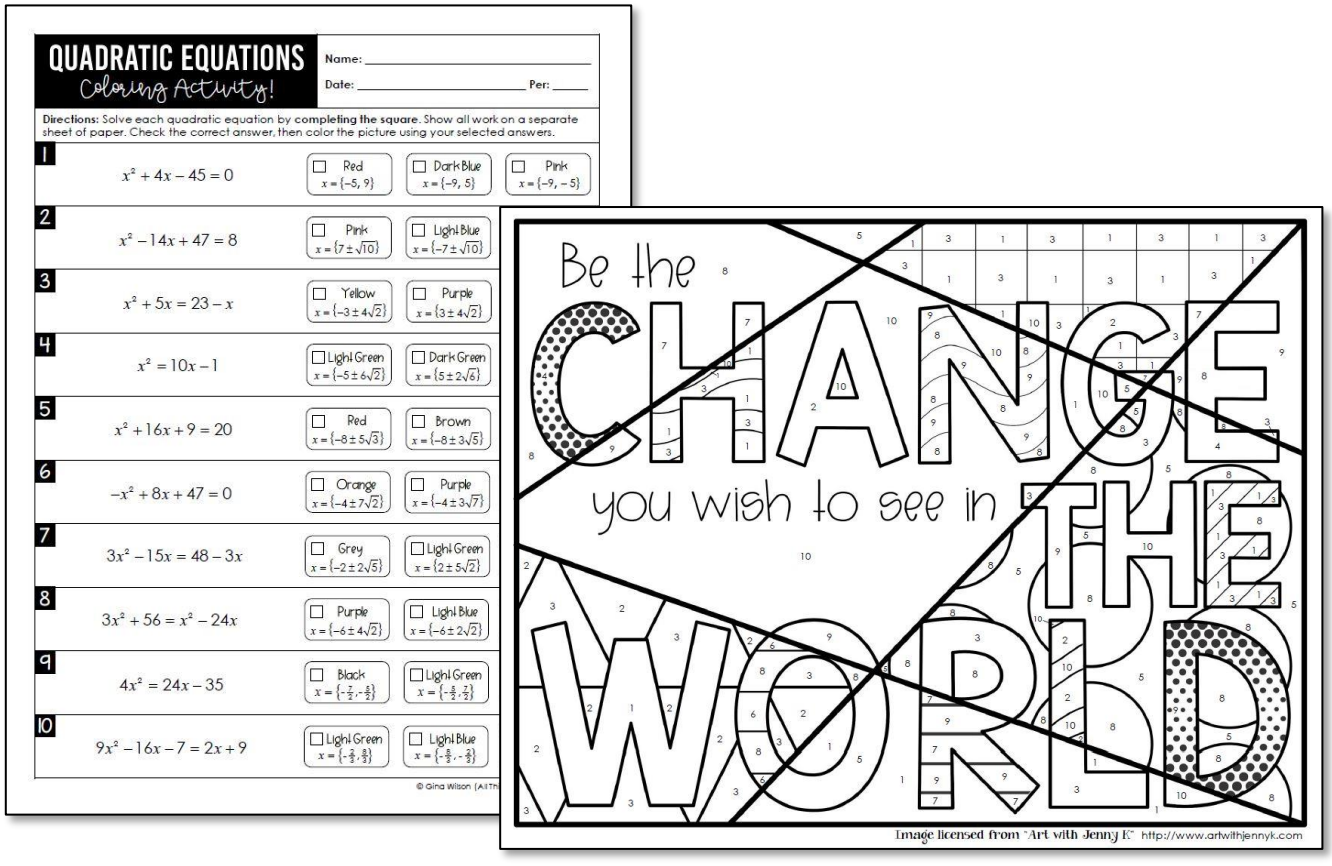
Directions:

1) Copy the quadratic equations and coloring picture for each student. I typically copy the coloring sheet on the back to save paper.

2) Students solve each problem. I have my students show all work on a separate sheet of notebook paper. There are three answer choices given for each problem. They check the correct solution.

3) After solving all the problems, students color the picture. The question number and selected answer reveals how to color the picture. For example, if "orange" is checked for question #1, then all 1's on the picture are orange.

I have them staple their work to the paper and turn in for a classwork grade.



QUADRATIC EQUATIONS Coloring Activity!

Name: _____

Date: _____ Per: _____

Directions: Solve each quadratic equation by **completing the square**. Show all work on a separate sheet of paper. Check the correct answer, then color the picture using your selected answers.

1	$x^2 + 4x - 45 = 0$	☐ Red $x = \{-5, 9\}$	☐ Dark Blue $x = \{-9, 5\}$	☐ Pink $x = \{-9, -5\}$
2	$x^2 - 14x + 47 = 8$	☐ Pink $x = \{7 \pm \sqrt{10}\}$	☐ Light Blue $x = \{-7 \pm \sqrt{10}\}$	
3	$x^2 + 5x = 23 - x$	☐ Yellow $x = \{-3 \pm 4\sqrt{2}\}$	☐ Purple $x = \{3 \pm 4\sqrt{2}\}$	
4	$x^2 = 10x - 1$	☐ Light Green $x = \{-5 \pm 6\sqrt{2}\}$	☐ Dark Green $x = \{5 \pm 2\sqrt{6}\}$	
5	$x^2 + 16x + 9 = 20$	☐ Red $x = \{-8 \pm 5\sqrt{3}\}$	☐ Brown $x = \{-8 \pm 3\sqrt{5}\}$	
6	$-x^2 + 8x + 47 = 0$	☐ Orange $x = \{-4 \pm 7\sqrt{2}\}$	☐ Purple $x = \{-4 \pm 3\sqrt{7}\}$	
7	$3x^2 - 15x = 48 - 3x$	☐ Grey $x = \{-2 \pm 2\sqrt{5}\}$	☐ Light Green $x = \{2 \pm 5\sqrt{2}\}$	
8	$3x^2 + 56 = x^2 - 24x$	☐ Purple $x = \{-6 \pm 4\sqrt{2}\}$	☐ Light Blue $x = \{-6 \pm 2\sqrt{2}\}$	
9	$4x^2 = 24x - 35$	☐ Black $x = \{-\frac{7}{2}, -\frac{5}{2}\}$	☐ Light Green $x = \{-\frac{5}{2}, -\frac{7}{2}\}$	
10	$9x^2 - 16x - 7 = 2x + 9$	☐ Light Green $x = \{-\frac{2}{3}, \frac{8}{3}\}$	☐ Light Blue $x = \{-\frac{8}{3}, -\frac{2}{3}\}$	

QUADRATIC EQUATIONS
Coloring Activity!

Name: _____

Date: _____ **Per:** _____

Directions: Solve each quadratic equation by **completing the square**. Show all work on a separate sheet of paper. Check the correct answer, then color the picture using your selected answers.

1 $x^2 + 4x - 45 = 0$

- ☐ Red $x = \{-5, 9\}$
- ☐ Dark Blue $x = \{-9, 5\}$
- ☐ Pink $x = \{-9, -5\}$

2 $x^2 - 14x + 47 = 8$

- ☐ Pink $x = \{7 \pm \sqrt{10}\}$
- ☐ Light Blue $x = \{-7 \pm \sqrt{10}\}$
- ☐ Yellow $x = \{7 \pm 2\sqrt{5}\}$

3 $x^2 + 5x = 23 - x$

- ☐ Yellow $x = \{-3 \pm 4\sqrt{2}\}$
- ☐ Purple $x = \{3 \pm 4\sqrt{2}\}$
- ☐ Red $x = \{-2 \pm 3\sqrt{3}\}$

4 $x^2 = 10x - 1$

- ☐ Light Green $x = \{-5 \pm 6\sqrt{2}\}$
- ☐ Dark Green $x = \{5 \pm 2\sqrt{6}\}$
- ☐ Orange $x = \{-5 \pm 2\sqrt{6}\}$

5 $x^2 + 16x + 9 = 20$

- ☐ Red $x = \{-8 \pm 5\sqrt{3}\}$
- ☐ Brown $x = \{-8 \pm 3\sqrt{5}\}$
- ☐ Light Blue $x = \{8 \pm 5\sqrt{3}\}$

6 $-x^2 + 8x + 47 = 0$

- ☐ Orange $x = \{-4 \pm 7\sqrt{2}\}$
- ☐ Purple $x = \{-4 \pm 3\sqrt{7}\}$
- ☐ Black $x = \{4 \pm 3\sqrt{7}\}$

7 $3x^2 - 15x = 48 - 3x$

- ☐ Grey $x = \{-2 \pm 2\sqrt{5}\}$
- ☐ Light Green $x = \{2 \pm 5\sqrt{2}\}$
- ☐ Orange $x = \{2 \pm 2\sqrt{5}\}$

8 $3x^2 + 56 = x^2 - 24x$

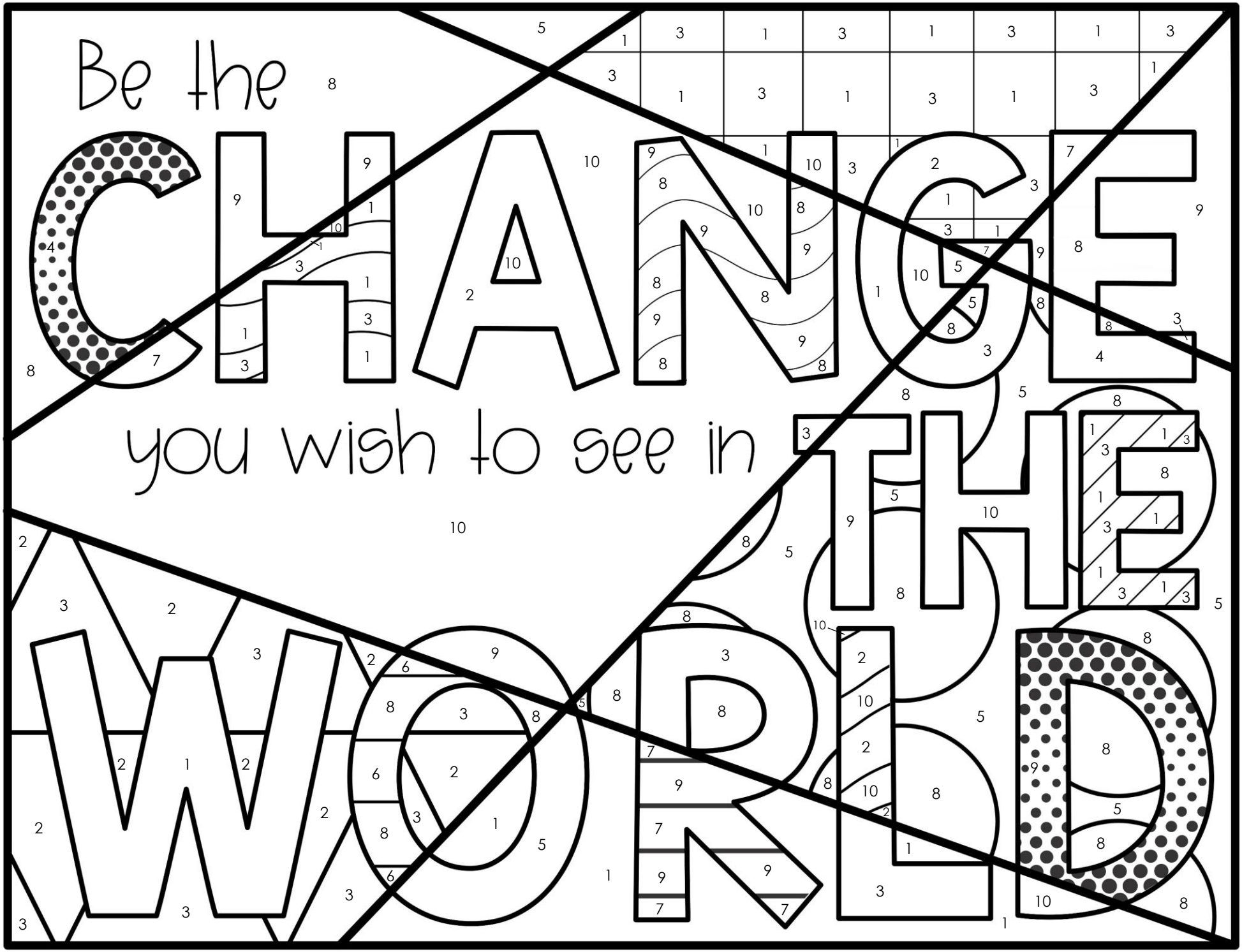
- ☐ Purple $x = \{-6 \pm 4\sqrt{2}\}$
- ☐ Light Blue $x = \{-6 \pm 2\sqrt{2}\}$
- ☐ Brown $x = \{6 \pm 2\sqrt{2}\}$

9 $4x^2 = 24x - 35$

- ☐ Black $x = \{-\frac{7}{2}, -\frac{5}{2}\}$
- ☐ Light Green $x = \{-\frac{5}{2}, \frac{7}{2}\}$
- ☐ Purple $x = \{\frac{5}{2}, \frac{7}{2}\}$

10 $9x^2 - 16x - 7 = 2x + 9$

- ☐ Light Green $x = \{-\frac{2}{3}, \frac{8}{3}\}$
- ☐ Light Blue $x = \{-\frac{8}{3}, -\frac{2}{3}\}$
- ☐ Orange $x = \{-\frac{8}{3}, \frac{2}{3}\}$



QUADRATIC EQUATIONS
Coloring Activity!

Name: Answer Key

Date: _____ **Per:** _____

Directions: Solve each quadratic equation by **completing the square**. Show all work on a separate sheet of paper. Check the correct answer, then color the picture using your selected answers.

1 $x^2 + 4x - 45 = 0$

- ☐ Red $x = \{-5, 9\}$
- ☒ Dark Blue $x = \{-9, 5\}$
- ☐ Pink $x = \{-9, -5\}$

2 $x^2 - 14x + 47 = 8$

- ☒ Pink $x = \{7 \pm \sqrt{10}\}$
- ☐ Light Blue $x = \{-7 \pm \sqrt{10}\}$
- ☐ Yellow $x = \{7 \pm 2\sqrt{5}\}$

3 $x^2 + 5x = 23 - x$

- ☒ Yellow $x = \{-3 \pm 4\sqrt{2}\}$
- ☐ Purple $x = \{3 \pm 4\sqrt{2}\}$
- ☐ Red $x = \{-2 \pm 3\sqrt{3}\}$

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7 $3x^2 - 15x = 48 - 3x$

- ☐ Grey $x = \{-2 \pm 2\sqrt{5}\}$
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8 $3x^2 + 56 = x^2 - 24x$

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- ☐ Orange $x = \{-\frac{8}{3}, \frac{2}{3}\}$

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