

# Solving Addition and Subtraction Equations

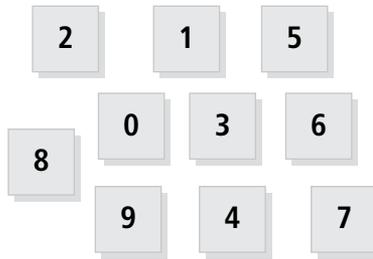


CCSS: 6.EE.B.7: Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

## Launch

Each row, column, and diagonal in the number square has the same sum.

|     |     |     |
|-----|-----|-----|
| $a$ | 7   | 2   |
| 1   | 5   | $b$ |
| 8   | $c$ | 4   |



Find the values of  $a$ ,  $b$ , and  $c$ .

$a = \boxed{\phantom{00}}$

$b = \boxed{\phantom{00}}$

$c = \boxed{\phantom{00}}$

Explain.

**Reflect** Did you use addition or subtraction to find each missing value? Could you use either operation?

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# Got It?

## PART 1 Got It

► Solve the equation  $8 + x = 36$ .

## PART 2 Got It

► Each equation shows an operation. For which equation(s) is addition the inverse operation?

I.  $b + 27 = 78$

II.  $25 = g - 19$

III.  $18 + v = 19$

## PART 3 Got It

► Write a simpler, equivalent equation to solve  $d - 29 = 85$ .

# Close and Check



## Focus Question

© MP2, MP7

How do you use addition and subtraction to undo each other? Why might this be helpful in balancing equations?

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## Do you know HOW?

1. Solve the equation.

$$7 + w = 23$$

$$w = \boxed{\phantom{00}}$$

2. Write the inverse operation for each equation shown in the table below. Use **S** for subtraction and **A** for addition.

| Equation      | Inverse Operation    |
|---------------|----------------------|
| $12 + r = 47$ | <input type="text"/> |
| $d - 15 = 4$  | <input type="text"/> |
| $14 - s = 10$ | <input type="text"/> |
| $t + 7 = 23$  | <input type="text"/> |
| $56 + w = 92$ | <input type="text"/> |
| $y - 8 = 61$  | <input type="text"/> |

3. Circle the equation that has a solution of 16.

$x + 6 = 22$

$x - 6 = 22$



## Do you UNDERSTAND?

4. **Vocabulary** What are inverse operations? Give an example.

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5. **Error Analysis** Identify the error in solving the equation and give the correct answer.

$$\begin{aligned} 5 + 7 + z &= 33 \\ 12 + z &= 33 \\ 12 + 12 + z &= 33 + 12 \\ z &= 45 \end{aligned}$$

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