



# Teacher's Resource Masters

## GRADE 8 VOLUME 2

### Topics 5–8

Home-School Connection Letters

Pick a Project

**enVision®** STEM Project

Reteach to Build Understanding

Additional Vocabulary Support

Build Mathematical Literacy

Enrichment

Teaching Tools

**enVision®** Mathematics



# Grade 8

## Volume 2: Topics 5–8

### Topic 5 Analyze and Solve Systems of Linear Equations

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Topic 5 Home-School Connection (English and Spanish)

Topic 5 Pick a Project A–D

Topic 5 **enVision**® STEM Project

Reteach to Build Understanding .....5-1 through 5-4

Additional Vocabulary Support .....5-1 through 5-4

Build Mathematical Literacy .....5-1 through 5-4

Enrichment.....5-1 through 5-4

### Topic 6 Congruence and Similarity

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Topic 6 Home-School Connection (English and Spanish)

Topic 6 Pick a Project A–D

Topic 6 **enVision**® STEM Project

Reteach to Build Understanding ..... 6-1 through 6-10

Additional Vocabulary Support ..... 6-1 through 6-10

Build Mathematical Literacy ..... 6-1 through 6-10

Enrichment..... 6-1 through 6-10

### Topic 7 Understand and Apply the Pythagorean Theorem

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Topic 7 Home-School Connection (English and Spanish)

Topic 7 Pick a Project A–D

Topic 7 **enVision**® STEM Project

Reteach to Build Understanding .....7-1 through 7-4

Additional Vocabulary Support .....7-1 through 7-4

Build Mathematical Literacy .....7-1 through 7-4

Enrichment.....7-1 through 7-4

### Topic 8 Solve Problems Involving Surface Area and Volume

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Topic 8 Home-School Connection (English and Spanish)

Topic 8 Pick a Project A–D

Topic 8 **enVision**® STEM Project

Reteach to Build Understanding .....8-1 through 8-4

Additional Vocabulary Support .....8-1 through 8-4

Build Mathematical Literacy .....8-1 through 8-4

Enrichment.....8-1 through 8-4

How many solutions does the system of linear equations have?

$$y = x - 3$$

$$y = -x + 1$$

For  $y = x - 3$ , the slope is 1.

For  $y = -x + 1$ , the slope is  $-1$ .

Because the slopes are different, the equations represent lines that intersect at one point. So the system has one solution.

At a farmers' market, Karen and Alice each bought some bread that cost \$2 per loaf. Then Karen spent \$3 to purchase other items, while Alice spent \$1. Could the girls have bought the same number of loaves of bread and spent the same total amount?

1. Let  $x$  represent the number of loaves of bread. Fill in the boxes to write a system of equations for the total amounts spent.

Karen:  $y = \square x + \square$

Alice:  $y = \square x + \square$

2. What are the slopes of the lines represented by the equations?
3. What are the  $y$ -intercepts of the lines represented by the equations?
4. Do the lines intersect?
5. How many solutions are there to this system of equations?
6. Can Karen and Alice have bought the same number of loaves of bread and spent the same total amount?

### On the Back!

7. How many solutions does the system of linear equations have?

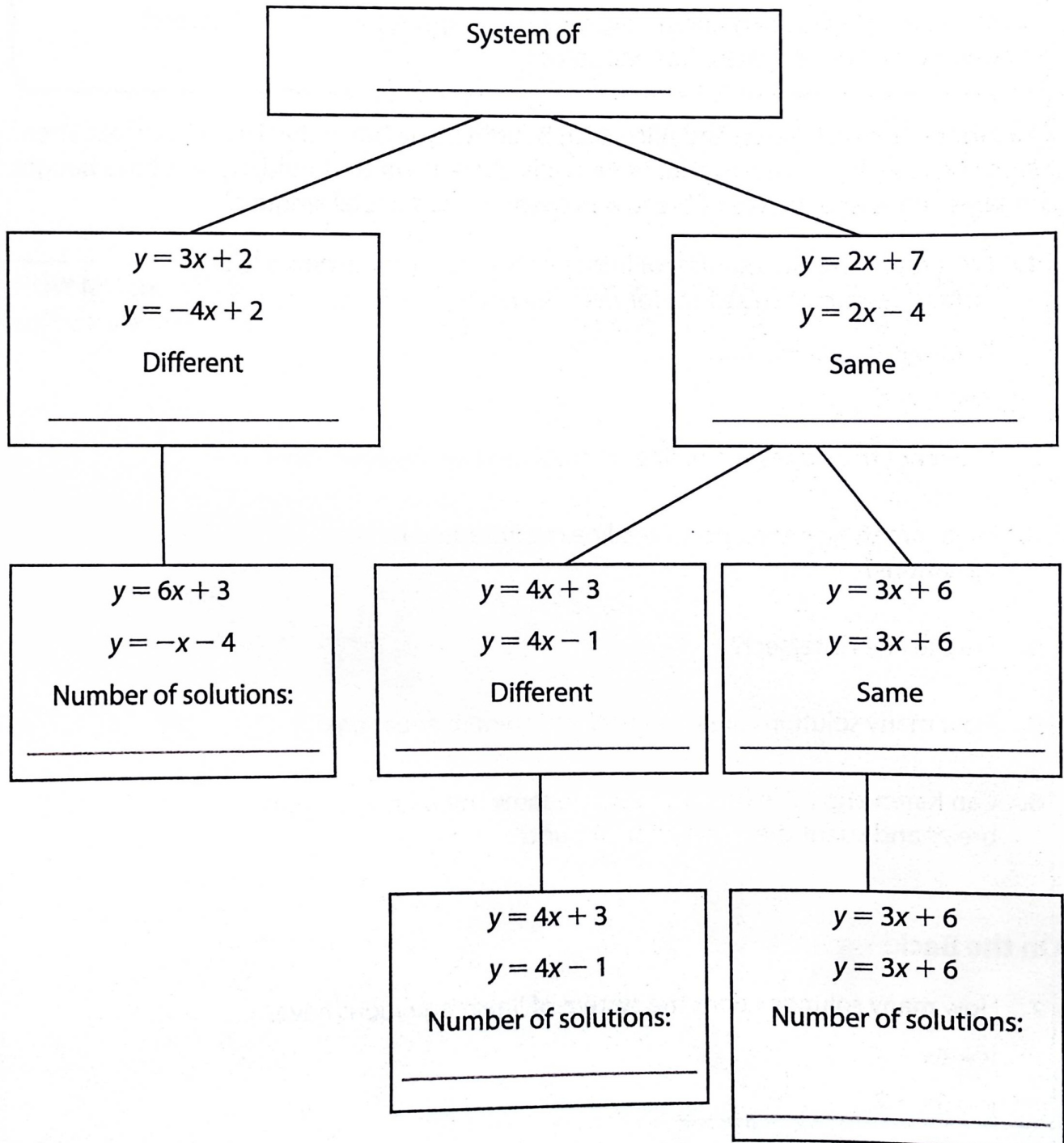
$$y = 6x + 4$$

$$y = 3x - 2$$

Name \_\_\_\_\_

Each section of the graphic organizer contains a vocabulary term or the possible solution type for the system shown. Use the list below to complete the graphic organizer. Some terms may be used more than once.

slope	y-intercept	linear equations
infinitely many solutions	no solution	one solution





Name \_\_\_\_\_

**Read the problem below. Then answer the questions to help you understand the problem.**

Sarah has a membership to Vertical Planet, and Jackson has a membership to Wild Walls. Let  $x$  represent the number of months each climber uses the gym and  $y$  represent the amount they each pay. If they both joined each gym at the same time, will there ever be a time when their total cost for the memberships will be the same? Explain.

**Vertical Planet**

One-month pass:  
\$58

**Wild Walls**

\$50 Start-up fee  
Membership:  
\$58/month

1. What is the first step in solving the problem?
2. Will the answer to this problem be a number of months? Explain.
3. Explain why the equation  $y = 58x$  gives the cost for  $x$  months at Vertical Planet.
4. Highlight the monthly membership fee at Wild Walls. Does this number represent the total cost for one month at Wild Walls? Explain.
5. Circle the equation that gives the cost for  $x$  months at Wild Walls.

$y = 58x$

$y = 50x$

$y = 58x + 50$

$y = 50x + 58$