



MISSISSIPPI

# EXEMPLAR

Units *&* Lessons

MATHEMATICS

**Grade 8**

Grant funded by:



## Lesson 5: Mid-Unit Assessment on Solving Systems Algebraically

**Focus Standard(s):** 8.EE.8a, 8.EE.8b

**Additional Standard(s):** 8.EE.5, 8.EE.6, 8.EE.7a, 8.EE.7b, 8.F.1, 8.F.2, 8.F.3

**Standards for Mathematical Practice:** SMP.1, SMP.2, SMP.4, SMP.6, SMP.7, SMP.8

**Estimated Time:** 55 minutes

**Resources and Materials:**

- Handout 5.1: Mid-Unit Assessment

**Lesson Target(s):**

- Students will understand how systems produce different numbers of solutions.
- Students will analyze different types of representations and solutions to systems of equations.

**Guiding Question(s):**

- What do the different numbers of solutions to systems of equations represent?
- How can systems of equations be classified by their graphical representations?


## Vocabulary

**Academic Vocabulary:**

- Infinite solutions
- Parallel lines
- Systems of equations

**Instructional Strategies for Academic Vocabulary:**

- Introduce words with student-friendly definitions and pictures
- Model how to use the words in discussion
- Discuss the meaning of word in a mathematical context
- Write/discuss using the words

Symbol	Type of Text and Interpretation of Symbol
	Instructional support and/or extension suggestions for students who are EL, have disabilities, or perform well below the grade level and/or for students who perform well above grade level
✓	Assessment (Pre-assessment, Formative, Self, or Summative)

### Instructional Plan

**Understanding Lesson Purpose and Student Outcomes:** Students will independently demonstrate understanding of graphing systems of equations.

**Anticipatory Set/Introduction to the Lesson: Whole Class Discussion**

Open the class by having students write one sentence summarizing the standards that have been addressed thus far and report out in a whole group discussion.

**Activity 1: Mid-Unit Assessment**

- ✓ Distribute **Handout 5.1: Mid-Unit Assessment**. Monitor student progress.

**For students who are EL, have disabilities, or perform well below grade level:**

- Provide transparency graph to students who need assistance locating the point of intersection.
- Ask the following prompting questions:
  - What might your final answer look like?
  - What do you know about equations with no or infinite solutions?

**Reflection and Closing:**

Reflect on student progress as demonstrated on Mid-Unit Assessment.

### Homework

Students will solve equations for a specified variable (SMP.4).

1.  $2x + y = 4$ ; for  $y$

2.  $7 = 5a + b$ ; for  $a$

3.  $\frac{1}{2}bh = A$ ; for  $h$

# Handout 5.1: Mid-Unit Assessment

Name: \_\_\_\_\_

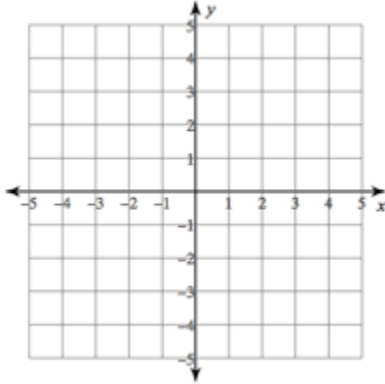
Date: \_\_\_\_\_

Directions: Solve each system by graphing. Be sure to list the point of intersection.

1)  $y = 2x + 3$

$y = 4x - 1$

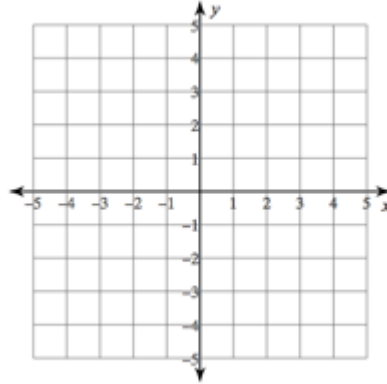
Point of Intersection:



2)  $y = \frac{1}{2}x + 3$

$2y = x - 6$

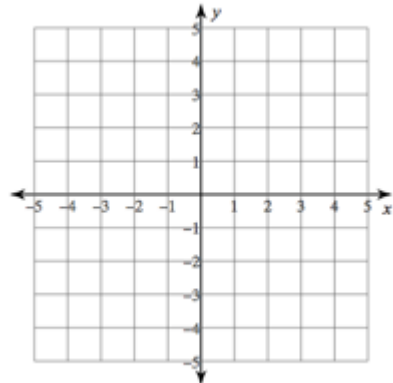
Point of Intersection:



3)  $x = 2$

$y = -\frac{3}{2}x + 1$

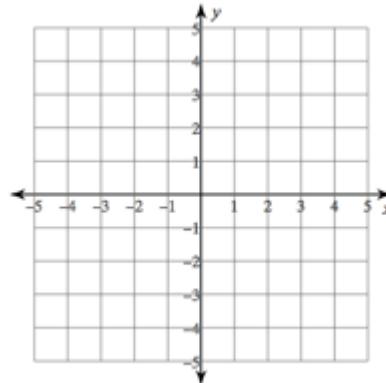
Point of Intersection:



4)  $y = 4x + 8$

$y = 4(x + 2)$

Point of Intersection:



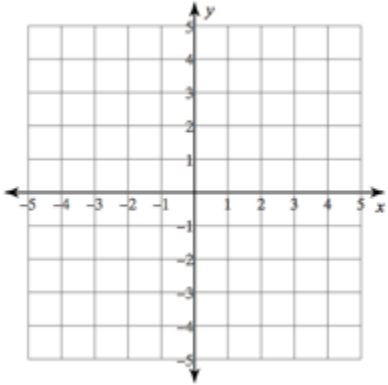
Write an equation so the system has one solution.

5)  $y = x + 1$  \_\_\_\_\_

What is the solution? \_\_\_\_\_

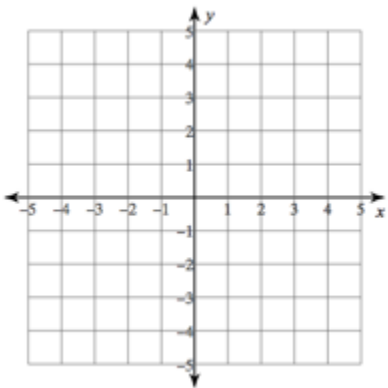
Write an equation so the system has no solution. Graph the system to prove.

6)  $2x + y = 3$



Write an equation so the system has infinite solutions. Graph the system to prove.

7)  $3x - y = 6$



### Mid-Unit Assessment Rubric

	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
<b>Question 1</b> <b>(2, 7)</b>	Student graphed both equations correctly and listed the solution.	Student graphed both equations correctly but did not correctly list solution	Student graphed one equation correctly.	Student did not graph equations correctly.
<b>Question 2</b> <b>No Solution</b>	Student graphed both equations correctly and listed the solution.	Student graphed both equations correctly but did not correctly list solution	Student graphed one equation correctly.	Student did not graph equations correctly.
<b>Question 3</b> <b>(2, -2)</b>	Student graphed both equations correctly and listed the solution.	Student graphed both equations correctly but did not correctly list solution.	Student graphed one equation correctly.	Student did not graph equations correctly.
<b>Question 4</b> <b>Infinite Solutions</b>	Student graphed both equations correctly and listed the solution.	Student graphed both equations correctly but did not correctly list solution.	Student graphed one equation correctly.	Student did not graph equations correctly.

<p><b>Question 6</b></p> <p><b>Equation should have different slope</b></p>	<p>Student provided correct equation and correct point of intersection.</p>	<p>Student provided correct equation but no point of intersection.</p>	<p>Student did not provide a correct equation.</p>	<p>Student did not provide an equation.</p>
<p><b>Question 7</b></p> <p><b>Equation should have same slope, but different y-intercept.</b></p>	<p>Student provided correct equation and correctly graphed the system.</p>	<p>Student provide correct equation but did not correctly graph the system.</p>	<p>Student did not provide correct equation but attempted graph.</p>	<p>Student did not provide correct equation and did not attempt graph.</p>
<p><b>Question 8</b></p> <p><b>Equation should have same slope and same y-intercept.</b></p>	<p>Student provided correct equation and correctly graphed the system.</p>	<p>Student provide correct equation but did not correctly graph the system.</p>	<p>Student did not provide correct equation but attempted graph.</p>	<p>Student did not provide correct equation and did not attempt graph.</p>

For training or questions regarding this unit,  
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