

PRACTICE TEST

# Mathematics

## Grade 8

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Student Name

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School Name

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District Name



# Grade 8 Mathematics

## SESSION 1

This session contains 5 questions.

*You may use your reference sheet during this session.  
You may **not** use a calculator during this session.*



### Directions

Read each question carefully and then answer it as well as you can. You must record all answers in your Practice Test Answer Document.

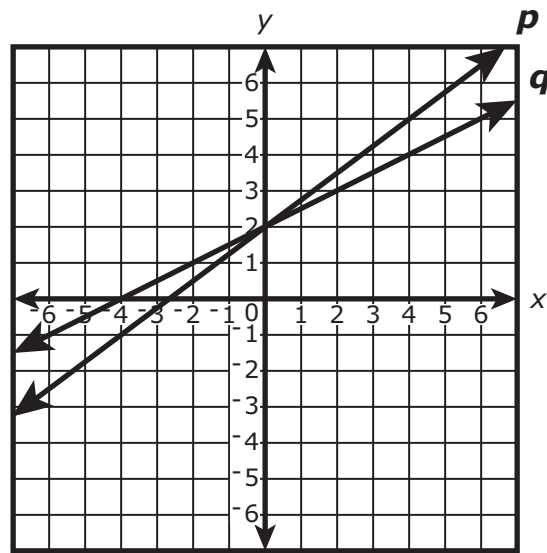
For some questions, you will mark your answers by filling in the circles in your Practice Test Answer Document. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided in your Practice Test Answer Document. Only responses written within the provided space will be scored.



- 1 Line  $p$  and line  $q$  are shown on this coordinate grid.



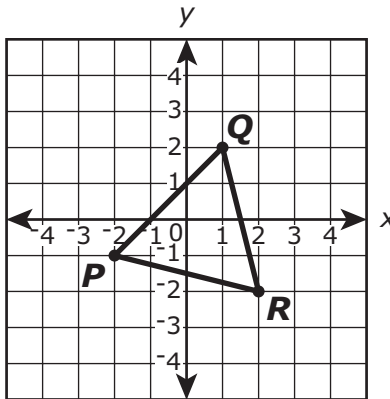
Which of the following statements best describes the lines?

- A. Line  $p$  has the same slope as line  $q$ .
- B. Line  $p$  has a greater slope than line  $q$ .
- C. The  $y$ -intercept of line  $p$  is greater than the  $y$ -intercept of line  $q$ .
- D. The  $x$ -intercept of line  $q$  is greater than the  $x$ -intercept of line  $p$ .

- 2 Which statement **best** describes the value of  $\sqrt{8}$  ?
- A. The value of  $\sqrt{8}$  is between 2 and 2.5.
  - B. The value of  $\sqrt{8}$  is between 2.5 and 3.
  - C. The value of  $\sqrt{8}$  is between 3 and 3.5.
  - D. The value of  $\sqrt{8}$  is between 3.5 and 4.

This question has two parts.

- 3 Triangle  $PQR$  is shown on the coordinate plane.



Triangle  $PQR$  is rotated  $90^\circ$  counterclockwise about the origin to form the image triangle  $P'Q'R'$  (not shown). Then triangle  $P'Q'R'$  is reflected across the  $x$ -axis to form triangle  $P''Q''R''$  (not shown).

**Part A**

What are the signs of the coordinates  $(x,y)$  of point  $P'$ ?

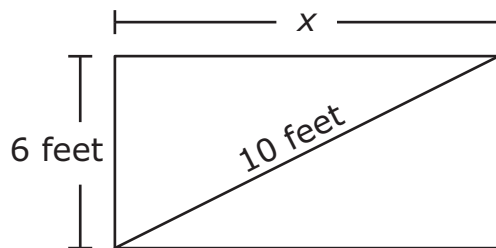
- A. Both  $x$  and  $y$  are positive.
- B.  $x$  is negative and  $y$  is positive.
- C. Both  $x$  and  $y$  are negative.
- D.  $x$  is positive and  $y$  is negative.

**Part B**

What are the signs of the coordinates  $(x,y)$  of point  $Q''$ ?

- A. Both  $x$  and  $y$  are positive.
- B.  $x$  is negative and  $y$  is positive.
- C. Both  $x$  and  $y$  are negative.
- D.  $x$  is positive and  $y$  is negative.

- 4 The students in a science club planted a rectangular flower garden in front of their school. The garden is 6 feet wide and has a diagonal length of 10 feet.

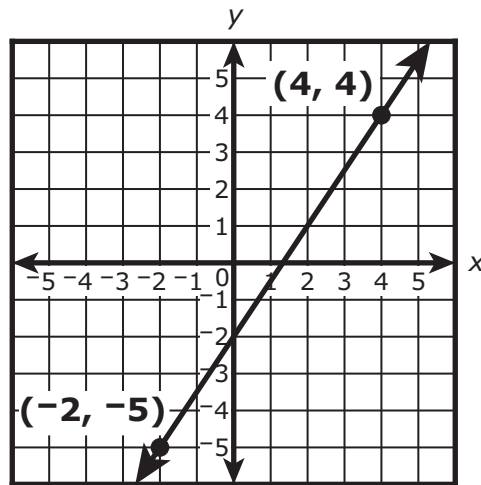


What is  $x$ , the length in feet of the garden?

Enter your answer in the answer boxes at the top of the answer grid **and** completely fill the matching circles.

This question has four parts.

- 5 Each of these four functions shows a relationship between  $x$  and  $y$ .



- Function H:

- Function I:  $y = 2.5x + 8$

- Function J: Multiply the  $x$  value by 3 and subtract 6 to get the  $y$  value.

- Function K:

$x$	$y$
-2	4
0	6
2	8
4	10
6	12

**Part A**

What is the slope of the line that represents Function H? Show or explain how you got your answer.

Enter your answer and your work or explanation in the space provided.



**Part B**

Write an equation in terms of  $x$  and  $y$  to represent the graph of **Function J**.

Enter your equation in the space provided.

**Part C**

What is the  $y$ -intercept of **Function K**? Show or explain how you got your answer.

Enter your answer and your work or explanation in the space provided.

**Part D**

List the four functions in order from the function with the least rate of change to the function with the greatest rate of change.

Enter your answer in the space provided.

# Grade 8 Mathematics

## SESSION 2

This session contains 4 questions.

*You may use your reference sheet during this session.  
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### Directions

Read each question carefully and then answer it as well as you can. You must record all answers in your Practice Test Answer Document.

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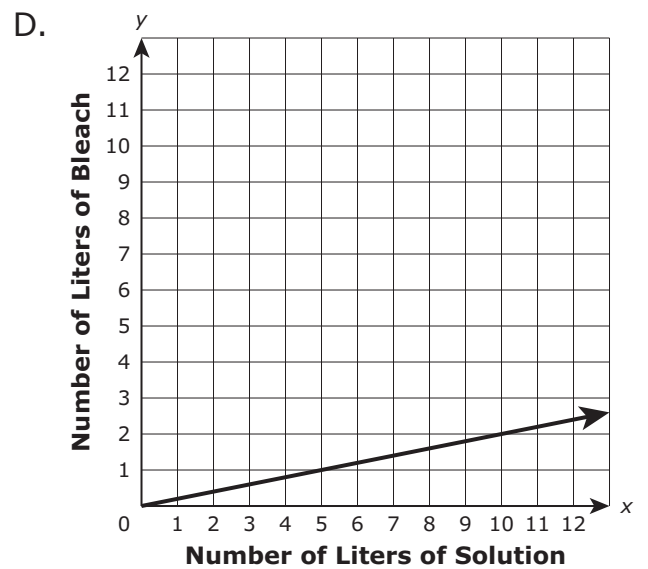
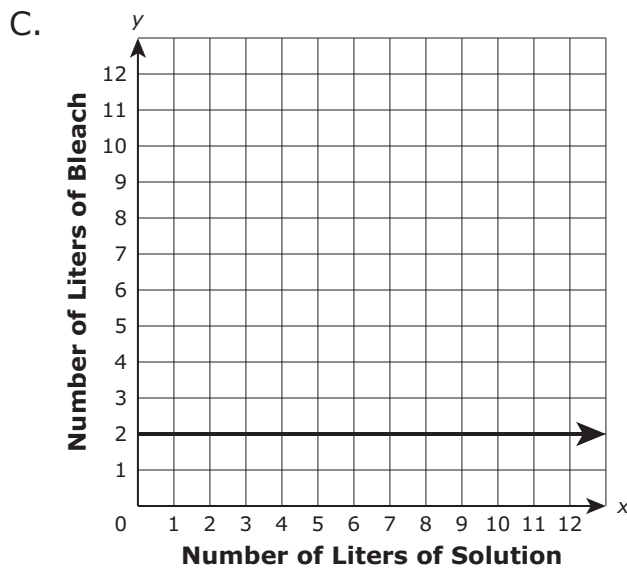
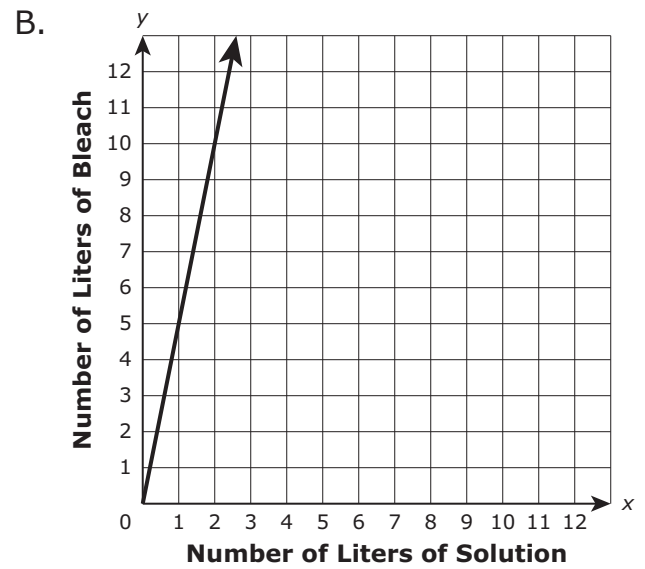
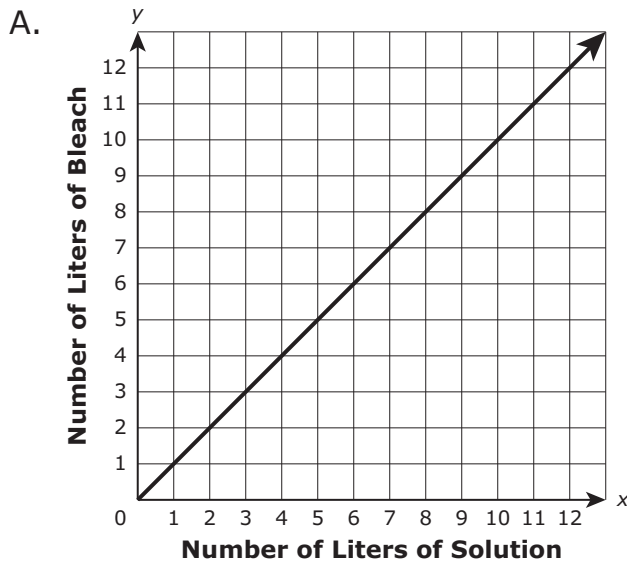
For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

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- 6 A solution is 20% bleach.

Which graph represents the number of liters of bleach,  $y$ , contained in  $x$  liters of solution?



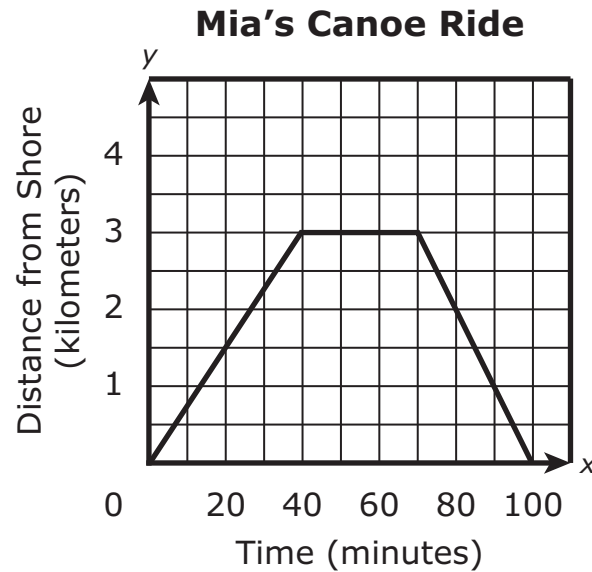
- 7 A principal surveyed 75 seventh-grade and eighth-grade students. She asked them if they prefer to obtain news from the Internet or to obtain news from television. She created a table to display the data, as shown.

		News Preference	
		Internet	Television
Students	Seventh Grade	16	34
	Eighth Grade	10	15

Based on the table, select the **three** correct statements.

- A. 49 eighth-grade students participated in the survey.
- B. 50 seventh-grade students participated in the survey.
- C. 26 out of 49 students prefer to obtain news from the Internet.
- D. 3 out of 5 eighth-grade students prefer to obtain news from television.
- E. 8 out of 25 seventh-grade students prefer to obtain news from the Internet.

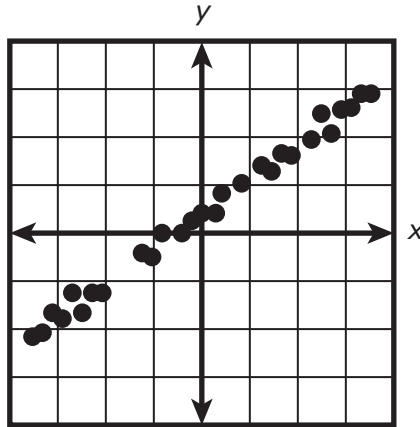
- 8 Mia paddled her canoe from the shore of a lake to an island. She stopped on the island to eat lunch, and then paddled her canoe back to the shore. This graph shows Mia's distance, in kilometers, from the shore over time.



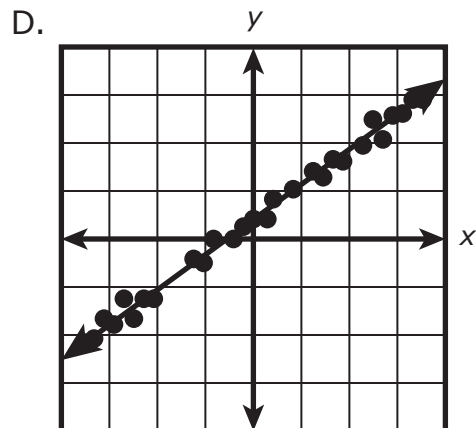
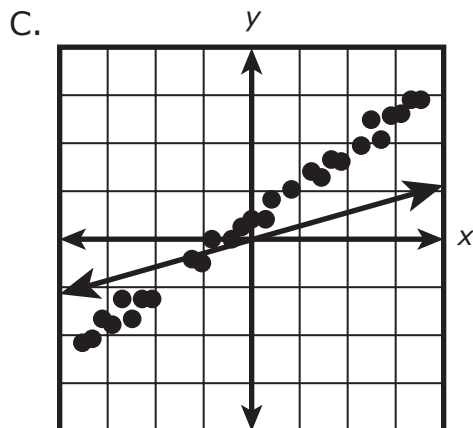
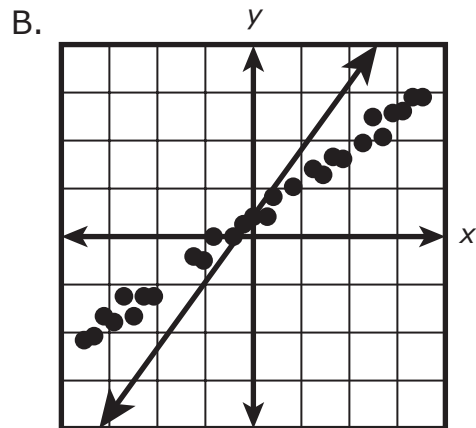
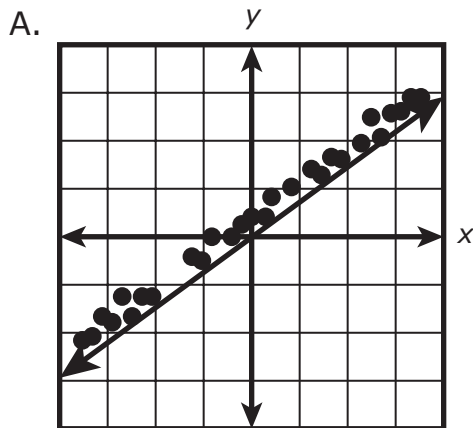
Based on the graph, which of the following statements is true?

- A. Mia paddled for a total of 100 minutes.
- B. Mia paddled a total distance of 3 kilometers.
- C. Mia paddled faster on the way to the island than on the way back to the shore.
- D. Mia paddled faster on the way back to the shore than on the way to the island.

- 9 A scatterplot is shown.



Which of the following **most** closely approximates the line of best fit for the data in the scatterplot?



# MASSACHUSETTS COMPREHENSIVE ASSESSMENT SYSTEM

## Grade 8 Mathematics Practice Test Answer Document

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

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

Last Name of Student: \_\_\_\_\_

First Name of Student: \_\_\_\_\_

### MARKING INSTRUCTIONS

- Use a No. 2 pencil only.
- Do not use ink, ballpoint, or felt-tip pens.
- Make solid marks that fill the circles completely.
- Erase cleanly any marks you wish to change.
- Do not make any stray marks on this form.
- Do not fold, tear, or damage this form.



1. (A) (B) (C) (D)

2. (A) (B) (C) (D)

3. Part A (A) (B) (C) (D)

Part B (A) (B) (C) (D)

4.

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•	•	•	•	•	•	•	•
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

**5. Part A**

**5. Part B**

**5. Part C**

**5. Part D**



- 6. (A) (B) (C) (D)
- 7. (A) (B) (C) (D) (E)
- 8. (A) (B) (C) (D)
- 9. (A) (B) (C) (D)

