New York State Testing Program

Mathematics Test
Book 3

Grade **8**

March 9–13, 2009

Name _____

21321

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Book 3

Tips for Taking the Test

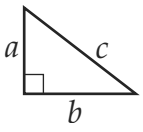
Here are some suggestions to help you do your best:

- Be sure to read carefully all the directions in the test book.
- Read each question carefully and think about the answer before writing your response.
- Be sure to show your work when asked. You may receive partial credit if you have shown your work.
- Use your calculator to help you solve the problems on this part of the test.

This picture means that you will use your ruler.

Mathematics Reference Sheet

FORMULAS

Pythagorean Theorem		$c^2 = a^2 + b^2$
Simple Interest	$I = prt$	
Distance Formula	$d = rt$	

CONVERSIONS

Temperature Conversions

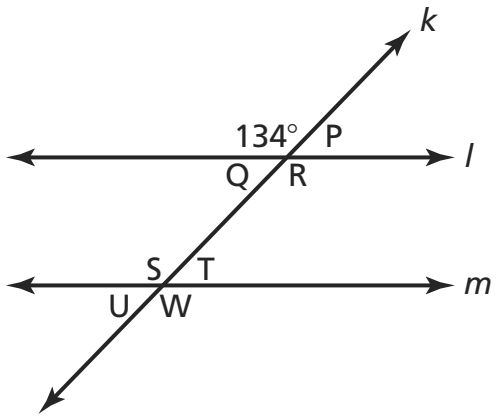
$F = \frac{9}{5}C + 32$

$C = \frac{5}{9}(F - 32)$

Measurement Conversions

1 mile = 5,280 feet
1 yard = 3 feet

34 In the diagram below, line *l* and line *m* are parallel, and line *k* is a transversal.



[not drawn to scale]

What is the measure of ∠U?

Answer _____ degrees

On the lines below, explain how you determined your answer.

_____

_____

_____

_____

_____

Go On

35 Complete the table below to create a pattern that shows a linear relationship between x and y.

x	y
1	
2	
3	
4	

Write an equation that can be used to represent the relationship between x and y in your table.

Equation _____

36 What is $28a^{11}b^7$ divided by $4a^3b$?

Show your work.

Answer _____

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37 Jeff wants to buy a phone card for long-distance calls. He can buy a 200-minute card for $10.00 or a 300-minute card for $12.00. Which card is the better value?

Show your work.

Answer _____

38 Simplify the expression below.

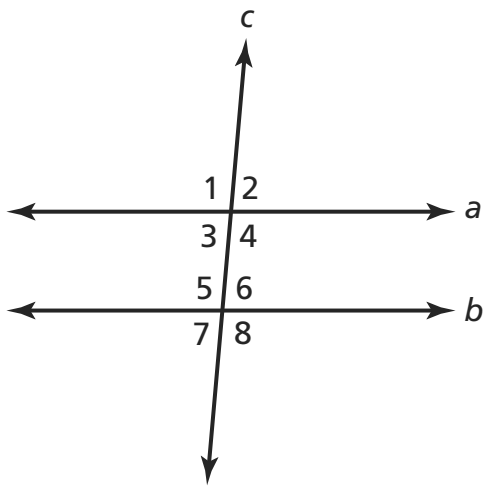
$$(3x^2 + 4x - 3) - (2x - 1)$$

Show your work.

Answer _____

Go On

39 In the diagram below, line *a* and line *b* are parallel, line *c* is a transversal, and the measure of $\angle 1$ is 100°.



[not drawn to scale]

Is $\angle 3$ congruent to $\angle 1$? On the lines below, explain how you determined your answer. If it is not congruent, give the correct measure of $\angle 3$.

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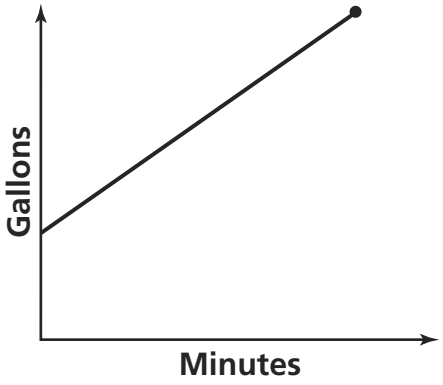
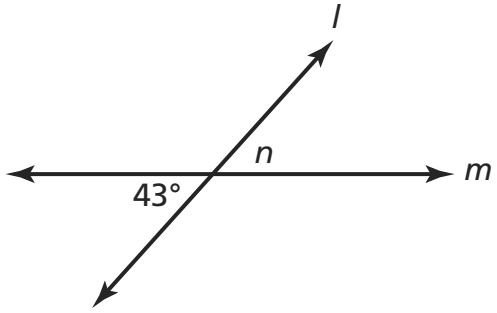
40 On the lines below, describe a situation that could be represented by the graph shown below.



On the lines below, explain the reason the graph does not pass through the origin in the situation you described.

Go On

41 In the diagram below, lines *l* and *m* intersect. What is the measure of $\angle n$ in the diagram below?



[not drawn to scale]

Answer _____ degrees

On the lines below, explain how you determined your answer.

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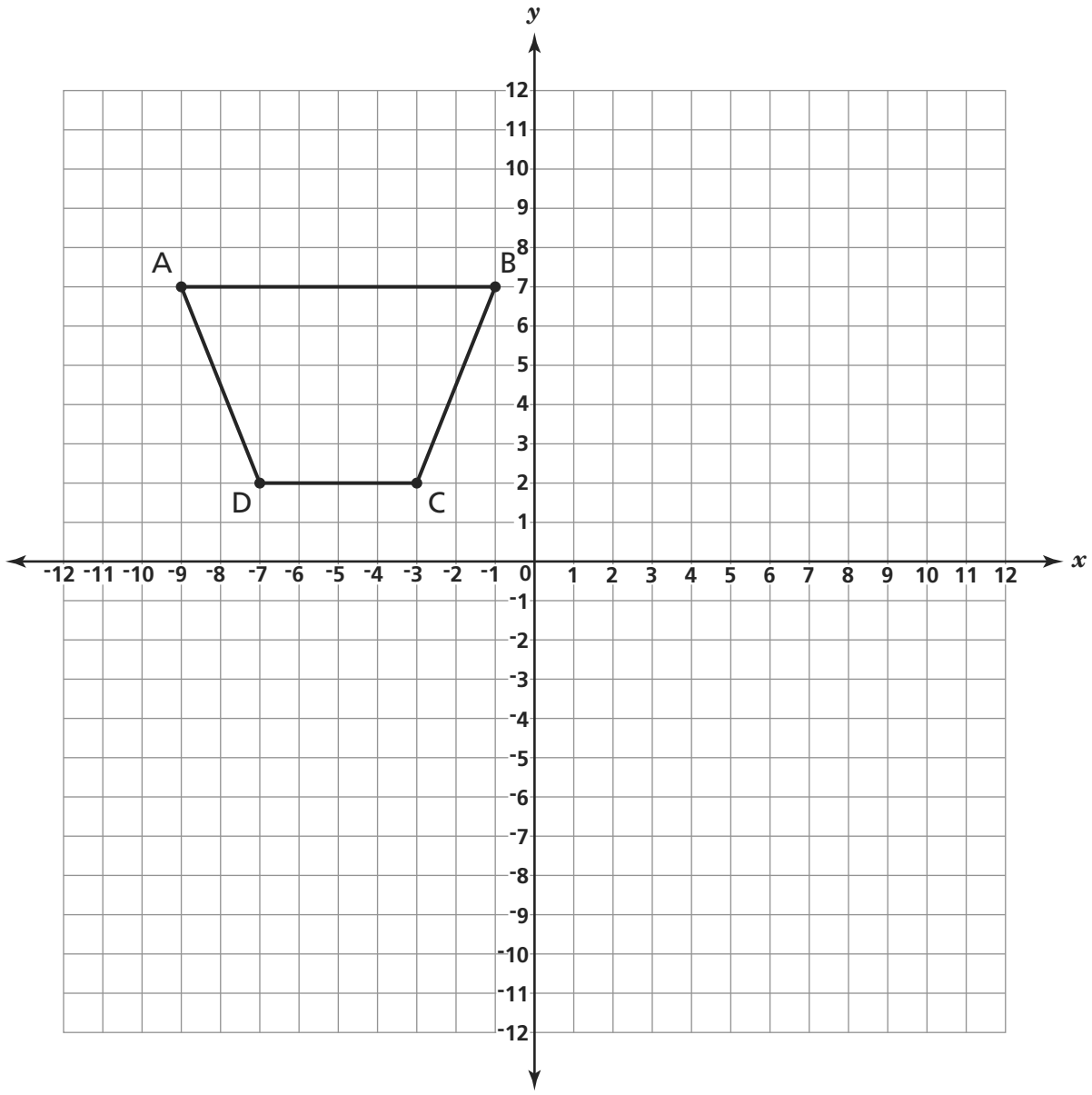
42 Shawn drew figure ABCD. He plans to create figure A'B'C'D' by translating figure ABCD 6 units down and 4 units to the right. On the coordinate plane below, draw and label Shawn's figure A'B'C'D'.



Next Shawn plans to create figure A"B"C"D" by translating figure A'B'C'D' 2 units up and 8 units to the right. What will be the coordinates of point A"?

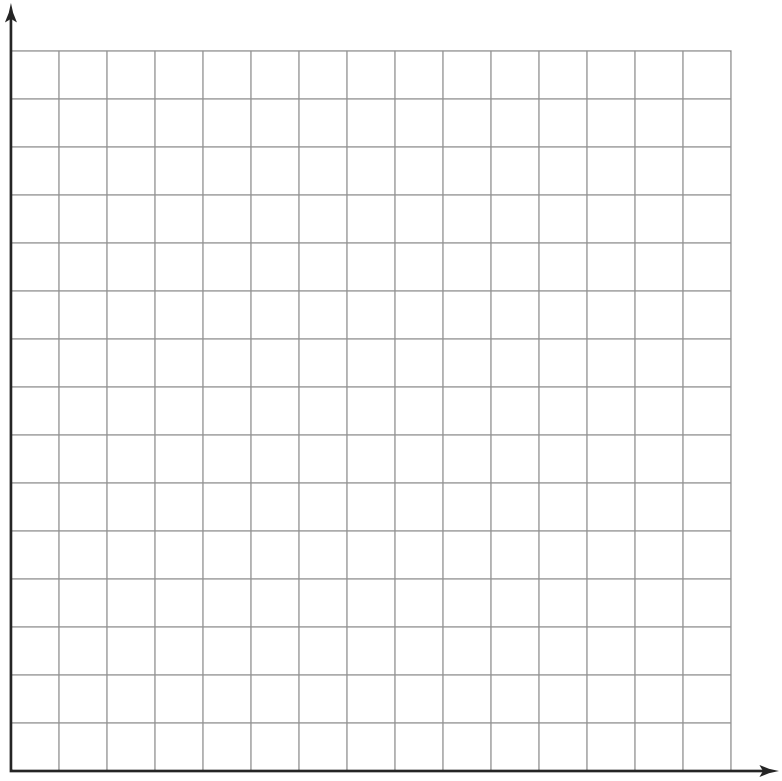
Answer _____

Go On

43 Melinda makes hats to give as gifts. She needs 2 days to complete each hat. On the grid below, create a line graph that shows the relationship between the number of days it takes Melinda to make hats and the number of hats she completes.

Be sure to

- title your graph
- label the axes
- graph all the data



How many hats will Melinda make in 14 days?

Answer _____ hats

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44 Lenora is practicing simplifying expressions for her mathematics class.

Part A

Lenora simplified the expression $(2x^{-1}y^4)(5x^3y^2)$ as shown below.

$$(2x^{-1}y^4)(5x^3y^2) = 10x^{-3}y^8$$

Did Lenora simplify the expression correctly? On the lines below, explain how you determined your answer.

Part B

What answer will Lenora get if she correctly simplifies the expression below?

$$\frac{4x^3y^5}{2x^2y}$$

Answer _____

Go On

45 What is the solution of the equation below?

$$4(x + 5) = x + 8$$

Show your work.

Answer $x =$ _____

Check to see if your answer is correct.

Show your work.

STOP

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