



New York State Testing Program

Grade 8

March 9–13, 2009 Mathematics Book 1 21319



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50 Minutes

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.
- You may use your tools to help you solve any problem on the test.
- Read each question carefully and think about the answer before choosing your response.

NO PROTRACTORS! NO PROTRACTORS! NO PROTRACTORS!



This picture means that you will use your ruler.

Sample A What is the shape of each base of a cylinder?
A circle B rectangle C triangle D square

Sample B What is the area, in square centimeters, of the rectangle shown below?

A 15 B 17 C 30 D 34

(the rectangle is not below, this question is in it. We are saving space, money, and trees)

STOP

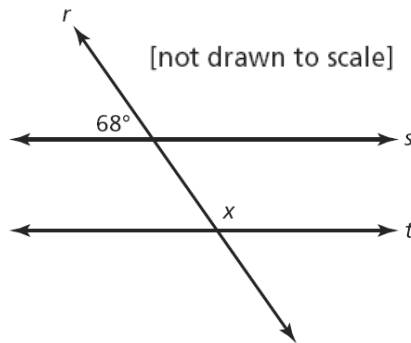
1 Which expression is equivalent to $14a - 4a + 5a - 3a$?

A $2a$ B $8a$ C $12a$ D $20a$

2 In the diagram below, line s is parallel to line t , and line r is a transversal.

What is the measure of $\angle x$?

- A 158°
B 112°
C 68°
D 22°



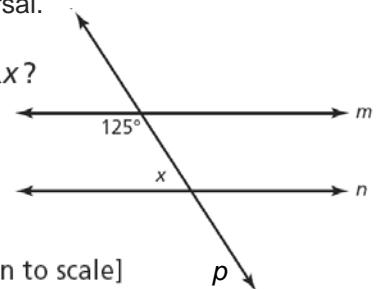
4 Simplify the expression below.

A 10^4 B 10^{10} C 10^{-4} D 10^{-21}

5 In the diagram below, line m and line n are parallel, and line p is a transversal.

What is the measure of $\angle x$?

- A 35° C 125°
B 55° D 215°

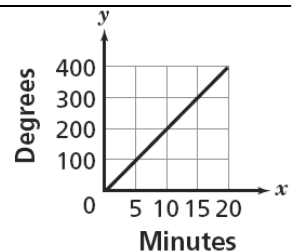


6 Solve the equation below for x . $2(6 + 2x) = 8x$

A $x = 1$ B $x = 2$ C $x = 3$ D $x = 6$

7 John drew the graph to represent a situation.

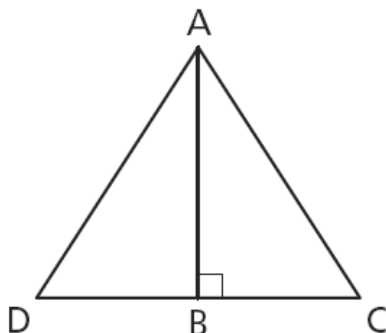
Which statement could describe the situation John graphed?



- A The temperature of a frozen pizza cooking in an oven increases 5 degrees every minute.
B The temperature of a frozen pizza cooking in an oven increases 10 degrees every minute.
C The temperature of a frozen pizza cooking in an oven increases 15 degrees every minute.
D The temperature of a frozen pizza cooking in an oven increases 20 degrees every minute.

3 Which line segment represents the hypotenuse on right triangle ABC?

- A \overline{AB}
B \overline{AC}
C \overline{AD}
D \overline{BC}



[not drawn to scale]

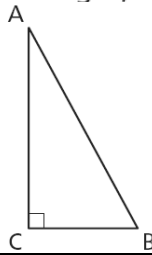
Go On

8 In triangle ABC below, $\angle ACB$ is a right angle. If the length of \overline{AC} is 8 centimeters and the length of \overline{AB} is 10 centimeters, what is the length, in centimeters, of \overline{BC} ?

- A 2 C 5
B 4 D 6

$$c^2 = a^2 + b^2$$

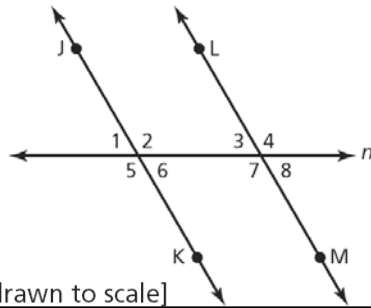
[not drawn to scale]



9 In the diagram below, JK is parallel to LM, and line n is a transversal.

Which two angles must be congruent to $\angle 4$ in the diagram?

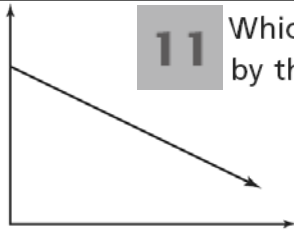
- A $\angle 1$ and $\angle 2$
B $\angle 1$ and $\angle 6$
C $\angle 2$ and $\angle 7$
D $\angle 6$ and $\angle 7$



[not drawn to scale]

10 Simplify the expression below.
 $3xy(9xy + 14x)$

- A $27xy + 42x$ C $27x^2y^2 + 14x$
B $9xy + 42x^2y$ D $27x^2y^2 + 42x^2y$



11 Which situation is best represented by the graph below?

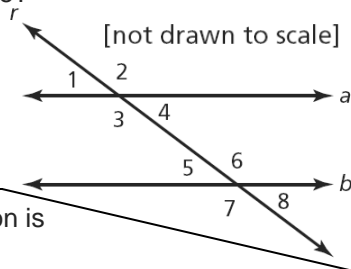
- A the height of a child from age ten to fifteen
B the volume of a balloon as it is being filled with air
C the amount of gas in a car's tank during a 5 hour trip
D the volume of water in a pool as it is being filled

12 The cost of Cynthia's dinner is \$15.20. She leaves a tip that is 15% of the cost of the dinner. What is the best estimate for the amount of the tip?

- A \$1.00 B \$2.00 C \$3.00 D \$4.00

13 In the diagram below, line a is parallel to line b, and line r is a transversal. Which pair of angles must have the same measure?

- A $\angle 1$ and $\angle 6$
B $\angle 1$ and $\angle 7$
C $\angle 2$ and $\angle 7$
D $\angle 3$ and $\angle 5$



[not drawn to scale]

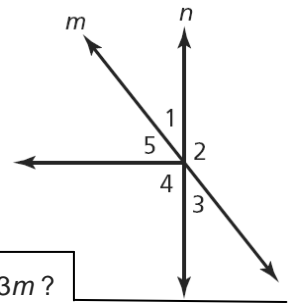
14 Which verbal expression is the same as $\frac{n}{2} + 6$?

- A two more than half of six
B six more than half of a number
C the sum of a number and two plus six
D six more than the product of a number and two

15 In the diagram below, line m intersects line n. Which pair of angles must be congruent?

- A $\angle 1$ and $\angle 3$ C $\angle 2$ and $\angle 3$
B $\angle 1$ and $\angle 5$ D $\angle 3$ and $\angle 5$

[not drawn to scale]

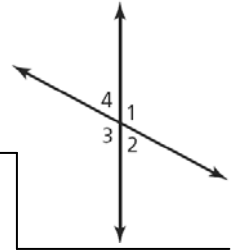


16 What is $3m^2 + 6m^2$ divided by $3m$?

- A $m^2 + 6m^2$ C $3m^2 + 6m$
B $m^2 + 2m$ D $m^2 + 2m^2$

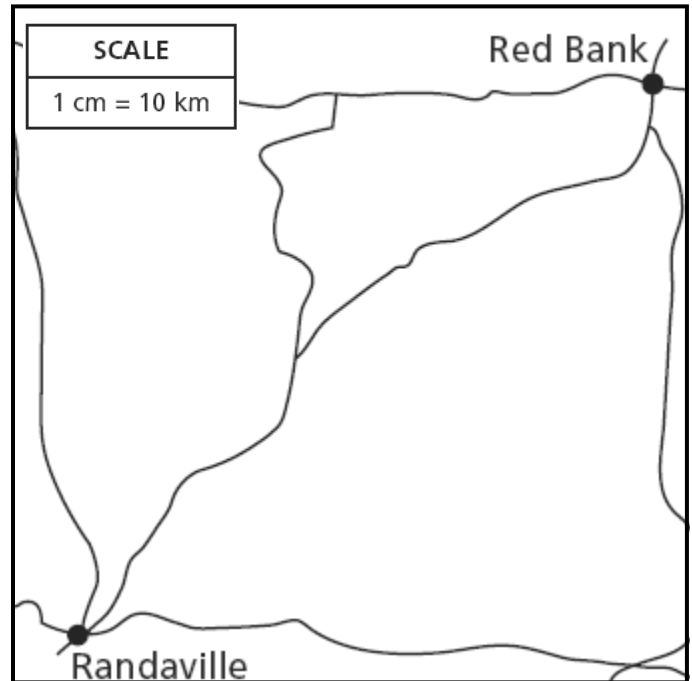
17 The measure of $\angle 1$ in the diagram below is 113° . What is the measure of $\angle 4$?

- A 67° C 113°
B 77° D 203°



Use your ruler to help you solve this problem.

18 What is the best estimation of the most direct route between Red Bank and Randaville?

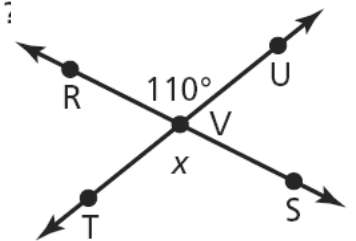


- A 7 kilometers C 70 kilometers
B 9 kilometers D 90 kilometers

20 In the diagram below, RS intersects TU at point V, and the measure of $\angle RVU$ is 110° .

What is the measure of $\angle x$?

- A 20° C 110°
B 70° D 200°

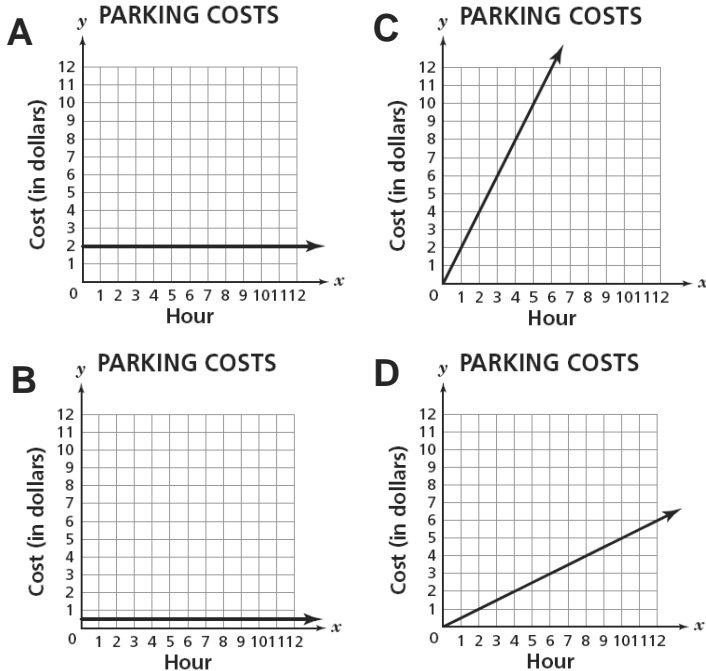


[not drawn to scale]

19 (on next page)

19

Alisa pays \$0.50 per hour to park her car at the museum. Which graph correctly shows the relationship between the hours, x , Alisa's car is parked and the total parking cost in dollars, y ?



21

Simplify the expression below. $\frac{3x^6 + 9x^4 - 6x^2}{3x^2}$

A $x^4 + 3x^2 - 2$ C $x^3 + 3x^2 - 3x$
 B $x^4 + 6x^2 + 3$ D $x^3 + 6x^2 + 3x$

22

The scale on a road map is shown below.

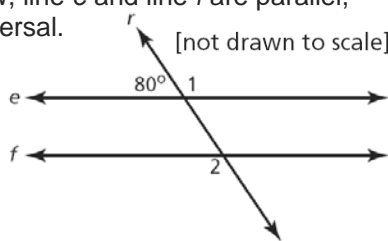
Scale: 1 cm = 75 mi

Sam measures the distance on the map between Rockland and Newbury as 5 centimeters. What is the actual distance, in miles, between Rockland and Newbury?

A 15 B 80 C 375 D 575

23

In the diagram below, line e and line f are parallel, and line r is a transversal.



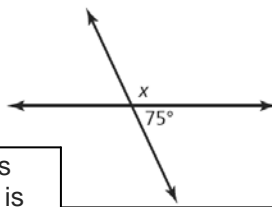
What is the sum of the measures of $\angle 1$ and $\angle 2$?

A 100° C 180°
 B 160° D 200°

24

In the diagram below, what is the measure of $\angle x$? [not drawn to scale]

A 15° C 105°
 B 75° D 165°



25

The scale on a map of Audrey's home state indicates that 1 cm is equivalent to 30 miles. On this map, the distance

between Davenport and Vansburg is 12 centimeters. What is the actual distance between Davenport and Vansburg?

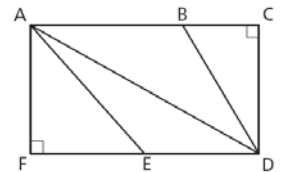
A 90 miles B 180 miles C 360 miles D 720 miles

26

In the rectangle below, which angle is the **right angle** of a right triangle?

- A $\angle BCD$
 B $\angle AED$
 C $\angle CDA$
 D $\angle FAD$

[not drawn to scale]

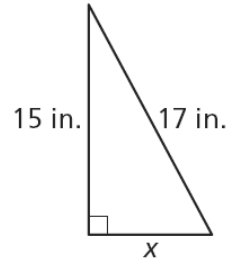


27

What is the length of side x in the triangle below?

- A 2 inches
 B 8 inches
 C 23 inches
 D 32 inches

[not drawn to scale]



STOP

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- Be sure to read carefully all the directions in the test book.
- You may use your tools to help you solve any problem on the test.
- 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.



Use your ruler to help you solve this problem.

NO PROTRACTORS! NO PROTRACTORS! NO PROTRACTORS!

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

Book 2

40 Minutes

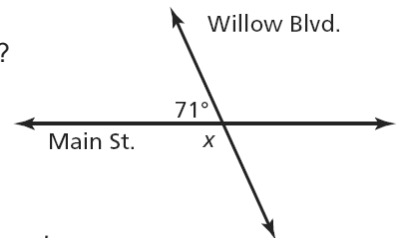
28

Willow Boulevard intersects Main Street at a 71° angle, as shown in

What is the measure of $\angle x$?

[not drawn to scale]

Show your work.



Answer _____ degrees

31

Mustafa buys a book that costs \$12.50. If the sales tax is 8%, what is the total cost of the book?

Show your work. Answer \$ _____

32

Solve the equation for p . $3(p + 6) = 5p + 4$

Show your work. Answer $p =$ _____

Check your answer. **Show your work. Go On**

29 In the diagram below, \overleftrightarrow{JK} and \overleftrightarrow{LM} are parallel, and line n is a transversal.

What is the measure of $\angle 1$?
Answer _____ degrees

On the lines below, explain how you determined your answer. (5 lines)

30 Complete the table below with the missing values for y . (cont.)

On the line below, write a function rule that shows the relationship between x and y in the table. (1 line)

Answer _____

x	y	x	y
-4	14	-1	5
-3	11	0	
-2	8	1	

33 Alexis started making a design by drawing figure ABCD. The next figure in her design is the reflection of figure ABCD in the y -axis. On the coordinate plane below, draw the reflection of figure ABCD. Label the image $A'B'C'D'$.

On the lines below, explain how you determined the location of B' . (5 lines)

STOP

Book 3

70 Minutes - Same Reference Sheet

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 $\angle U$?
Answer _____ degrees

On the lines below, explain how you determined your answer. (5 lines)

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

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

x	y
1	
2	
3	
4	

36 What is $28a^{11}b^7$ divided by $4a^3b$?
Show your work. **Answer** _____

37 Jeff wants to buy a phone card for long-distance calls. He can buy a 200-min. card for \$10.00 or a 300-min. card for \$12.00. Which card is the better value?
Show your work. **Answer** _____

38 Simplify the expression. $(3x^2 + 4x - 3) - (2x - 1)$
Show your work. **Answer** _____

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 $\angle 3$. (5 lines)

40 On the lines below, describe a situation that could be represented by the graph shown below. (5 lines)

On the lines below, explain the reason the graph does not pass through the origin in the situation you described. (5 MORE lines)

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

Answer _____ degrees

On the lines below, explain how you determined your answer. (5 lines)

[not drawn to scale]

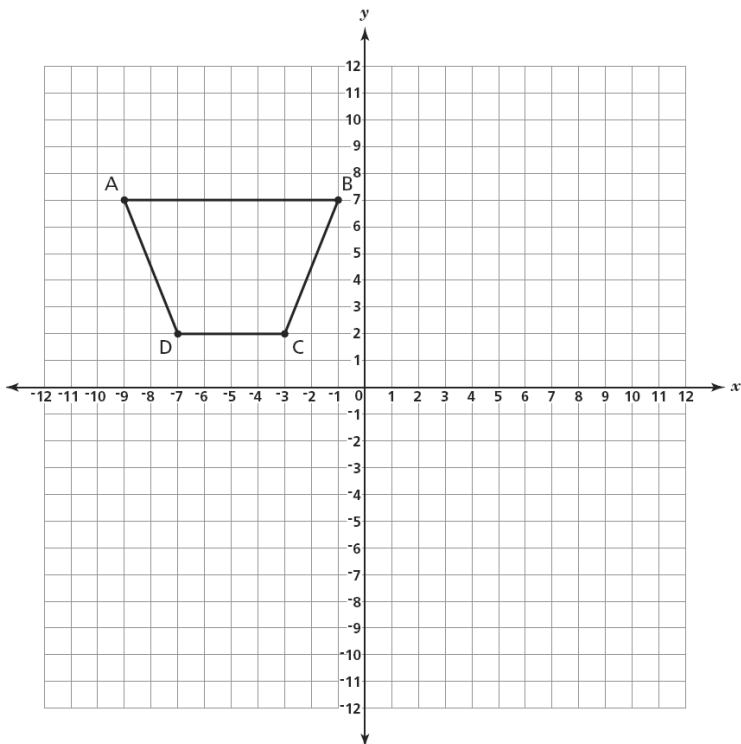


Seek Help on the Coaster Monkey Network
www.CoasterMonkey.net
TheDoctor.Abbubaca.com

Go On

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''?

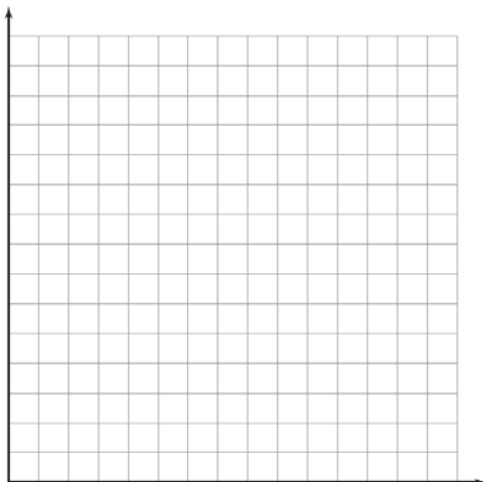
Answer _____

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

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. (5 lines)

Part B

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

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

Answer _____

45

What is the solution of the equation below?

Show your work.

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

Answer $x =$ _____

Check to see if your answer is correct.

Show your work.

