New York State Testing Program

Mathematics Test
Book 2

Grade 7

March 9–13, 2009

Name _____

21318

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Book 2

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.

This picture means that you will use your protractor.

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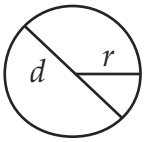
Mathematics Reference Sheet

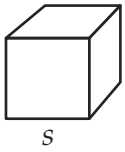
FORMULAS



Circle

Area $= \pi r^2$

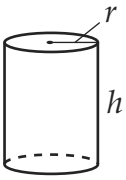
Circumference $= 2\pi r$



Cube

Total Surface Area $= 6s^2$

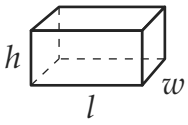
Volume $= s^3$



Right Circular Cylinder

Total Surface Area $= 2\pi rh + 2\pi r^2$

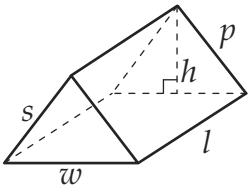
Volume $= \pi r^2 h$



Right Rectangular Prism

Total Surface Area $= 2wl + 2lh + 2wh$

Volume $= lwh$



Right Triangular Prism

Total Surface Area $= wh + lw + lp + ls$

Volume $= \frac{1}{2} wh \times l$

CONVERSIONS

1 centimeter = 10 millimeters
1 meter = 100 centimeters = 1,000 millimeters
1 kilometer = 1,000 meters

1 gram = 1,000 milligrams
1 kilogram = 1,000 grams

1 pound = 16 ounces
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 liter = 1,000 milliliters
1 kiloliter = 1,000 liters

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31 Erin wants to make a sandwich from the main ingredients shown in the table below.

Bread	Main Ingredient
Sourdough (S)	Peanut butter (P)
Wheat (W)	Ham (H)
Rye (R)	Turkey (T)
	Egg salad (E)

On the lines below, list all the possible ways Erin can make a sandwich using one type of bread and one main ingredient.

Go On

32 Jan buys 12 pens for $10. Each pen costs the same amount of money. Write a proportion to find the number of pens Jan can buy for $15. Then solve your proportion for the number of pens.

Show your work.

Answer _____ pens

33 What is the value of the expression below when $a = 2$ and $b = 6$?

$$3a^3 + 5b^2$$

Show your work.

Answer _____

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34 The radius of a hydrogen atom is about 0.000000106 millimeter. Write the length of this radius in scientific notation.

Answer _____ millimeter(s)

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

_____

_____

_____

_____

_____

Go On

35 The low temperature on Sunday was −9°F. The high temperature on Sunday was 14 degrees warmer than the low temperature.

What was the high temperature on Sunday?

Answer _____ °F

The low temperature on Monday was 6 degrees warmer than Sunday's low of −9°F. The low temperature on Tuesday was 3 degrees warmer than Monday's **low**. What was the **low** temperature on Tuesday?

Show your work.

Answer _____ °F

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36 Lewis has a bucket with a 5-gallon capacity. Lewis puts 12 pints of soapy water in the bucket to wash his car.

How many gallons of soapy water are in Lewis's bucket?

Show your work.

Answer _____ gallons

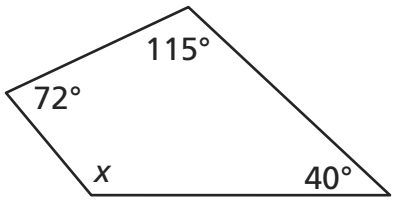
How many **more quarts** of soapy water will the bucket hold?

Show your work.

Answer _____ quarts

Go On

37 What is the measure of $\angle x$ in the quadrilateral below?



[not drawn to scale]

Show your work.

Answer _____ degrees

Check your answer.

Show your work.

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38 Millie recorded the prices of all the plants she sold between noon and 1 P.M. at a nursery. At the end of the hour, she reviewed her list, as shown below.

$2.95 $8.50 $12.95 $3.50 $4.50 $14.50 $12.95 $4.50 $3.50 $12.95 $8.50 $4.50

Using Millie's list, complete the frequency table below to show how many plants were sold in each of the indicated price ranges.

Be sure to

- title the table
- label the columns
- record all the data

$0.00–$3.99	
$4.00–$7.99	
$8.00–$11.99	
$12.00–$15.99	

Which price range shows the **least** number of plants sold?

Answer $ _____ to $ _____

STOP

Place Student Label Here

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