New York State Testing Program

Mathematics
Book 2

Grade **7**

Sample Test 2005

Name_____

TIPS FOR TAKING THE SAMPLE 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 writing your response.
- Be sure to show your work when asked. You may receive partial credit if you have shown your work.
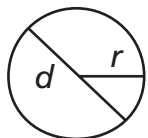- Use your calculator to help you solve the problems on this part of the test.

This picture means that you will use your ruler.

This picture means that you will use your protractor.
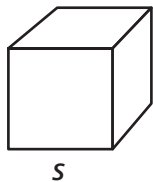
Mathematics Reference Sheet

FORMULAS

Circle
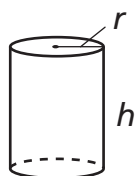
$\text{Area} = \pi r^2$

$\text{Circumference} = 2\pi r$
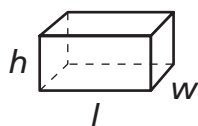
Cube

$\text{Total Surface Area} = 6s^2$

$\text{Volume} = s^3$

Right Circular Cylinder

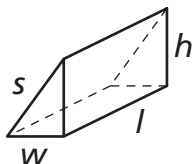$\text{Total Surface Area} = 2\pi rh + 2\pi r^2$

$\text{Volume} = \pi r^2 h$

Right Rectangular Prism

$\text{Total Surface Area} = 2wl + 2lh + 2wh$

$\text{Volume} = lwh$

Right Triangular Prism

$\text{Total Surface Area} = wh + lw + lh + ls$

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

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

31 Erin shops at two stores for a new sweater. The sweater at the first store costs $15 less than three times the cost, c, of the sweater at the second store. The sweater at the first store costs $90. The equation below can be used to determine the cost of the sweater at the second store.

$$3c - 15 = 90$$

Solve the equation to find the cost of the sweater at the second store.

Show your work.

Answer $ _____

Go On

32 Mr. Hardy assigns homework to his mathematics class. The assignment requires students to find the prime factorization of 648.

Part A

What is the prime factorization of 648?

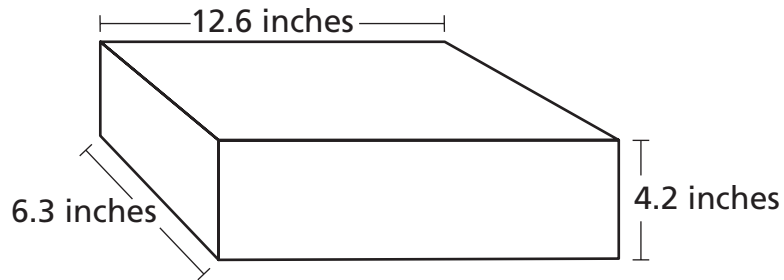*Show your work.*

Answer _____

Part B

Write the result of the prime factorization of 648 in exponential form.

Answer _____

33 Keisha wants to paint the entire outside of her rectangular storage box shown in the diagram below.

—12.6 inches—

6.3 inches

4.2 inches

[not drawn to scale]

Use **estimation** to calculate the total surface area, in square inches, of the storage box.

Show your work.

Answer _____ square inches

34 The Roosevelt Middle School band has monthly fundraisers. The table below shows the amount of money the band raises and their fundraising expenses each month for four months.

BAND FUNDRAISERS

Month	Amount raised	Expenses
September	$125	$50
October	$275	$75
November	$450	$125
December	$100	$25

Based on the data in the table, create a double-bar graph on the grid below to show the amount of money the band raises and the fundraising expenses for each month.

Be sure to

• title the graph
• label the axes
• graph all the data
• provide an appropriate key for the graph
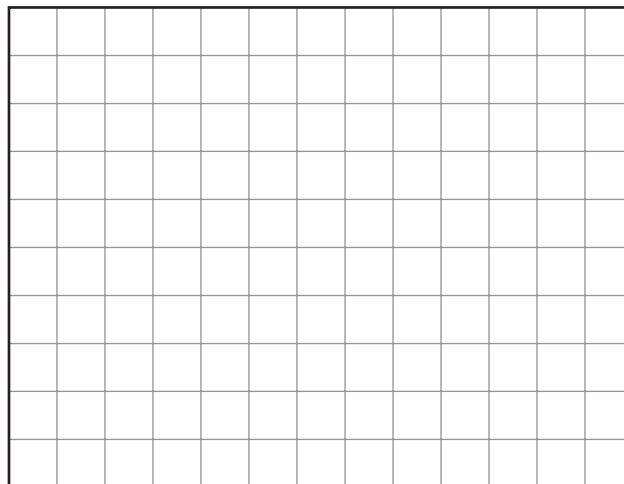
KEY

35 Gilda's family goes on a vacation. They travel 125 miles in the first 2.5 hours. If Gilda's family continues to travel at this rate, how many miles will they travel in 6 hours?

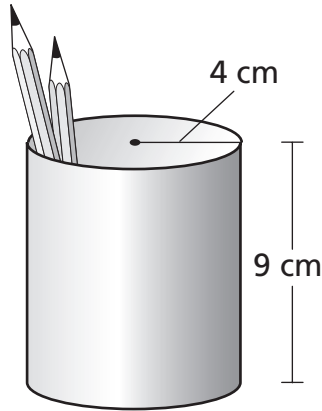$$\text{Distance} = \text{rate} \times \text{time}$$

Show your work.

Answer _____ miles

Go On

36 Mary wants to cover the bottom and outside of a can with material to make a pencil holder. She needs to know the surface area of the outside of the can shown below.

4 cm

9 cm

[not drawn to scale]

Part A

Calculate the surface area, in square centimeters, of the outside of Mary's pencil holder using the formula $\pi r^2 + 2\pi rh$. Round your answer to the nearest tenth.

Show your work.

Answer _____ square centimeters

Part B

On the lines below, explain why the formula $\pi r^2 + 2\pi rh$ is used to find the surface area of Mary's pencil holder instead of $2\pi r^2 + 2\pi rh$.

_____

_____

_____

_____

_____

37   Dylan has a bag containing 15 marbles. The table below shows the number of marbles of each color in the bag. As part of a probability experiment for his science class, Dylan randomly picks a marble from the bag and then replaces it. He repeats this 300 times.

DYLAN'S BAG OF MARBLES

Marble Color	Number of Marbles
White	3
Red	8
Blue	3
Black	1

Part A

Dylan randomly picks a marble from the bag. What is the probability the marble will be red?

Show your work.

Answer _____

Part B

Predict the number of times out of 300 Dylan will pick a red marble.

Show your work.

Prediction _____ times

Go On

38 The Gatlins are buying new carpet for their house. They need about 1,175 square feet of carpet. The carpet they buy is sold by the square yard.

Part A

Estimate the number of square yards of carpet the Gatlins need for their house.

Show your work.

Answer _____ square yards

Part B

On the lines below, describe a strategy the Gatlins should use to correctly estimate the number of square yards of carpet they need for their house.

_____

_____

_____

_____

_____

STOP

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