New York State Testing Program

Mathematics Test
Book 2

Grade **7**

March 12–16, 2007

Name _____

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 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.
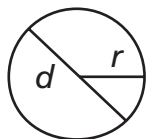
This picture means that you will use your ruler.

This picture means that you will use your protractor.

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Book 2

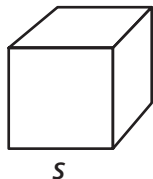**Page 1**

Mathematics Reference Sheet

FORMULAS

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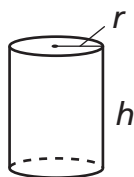
$\text{Area} = \pi r^2$

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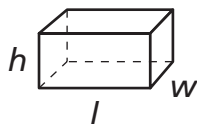
Cube

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

$\text{Volume} = s^3$

Right Circular Cylinder

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

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

Right Rectangular Prism

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

$\text{Volume} = lwh$
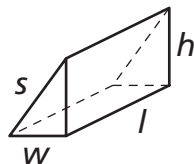
Right Triangular Prism

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

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

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

New York State Testing Program

31 The temperature in St. Cloud, Minnesota, was –4°F (Fahrenheit) on January 27 and 13°F on January 28.

Part A

On the number line below, plot the temperatures for January 27 and January 28. Be sure to label both points with the appropriate date.
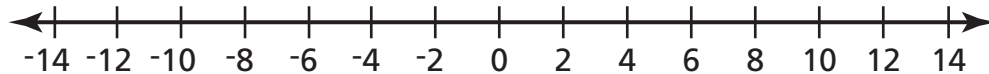
Part B

How many degrees warmer was it on January 28 than on January 27?

Show your work.

Answer _____ °F

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Page 3

32 The table below shows geographic information about Antarctica.

ANTARCTICA

Area	1.4×10^7 square kilometers
Lowest elevation	-2.56×10^3 meters

Write the numbers, in standard form, for the area and the lowest elevation of Antarctica.
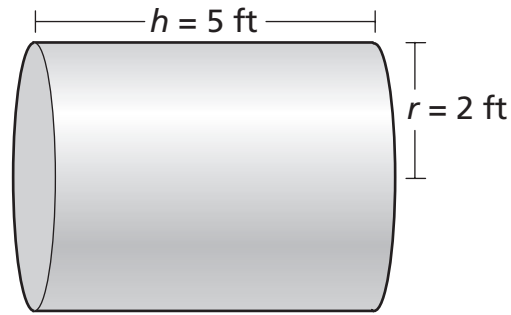
Answer   area _____ square kilometers

lowest elevation _____ meters

33   Chris must paint the cylindrical tank shown below.

[not drawn to scale]

Part A

What is the surface area of the **entire** tank to the nearest square foot?

Show your work.

Answer _____ square feet

Part B

One can of paint will cover 25 square feet. How many cans of paint must Chris purchase to paint the entire surface area of the tank?

Show your work.

Answer _____ cans of paint

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Page 5

34 Juan attends a carnival. The admission fee is $8. Tickets for rides cost $4 each. Juan needs one ticket for each ride. Write an equation Juan can use to determine the number of ride tickets, *r*, he can buy if he has $32 before he pays the admission fee.

Equation _____

Using the equation above, find the number of tickets Juan can buy.

Show your work.

Answer _____ ride tickets

35 The planter below contains 8 pounds of dirt.
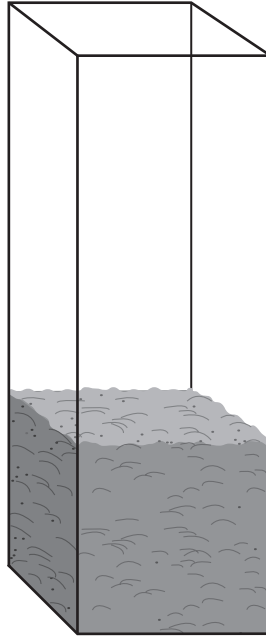
Estimate the weight of the dirt in the planter when the planter is completely filled.

Estimation _____ pounds

On the lines below, describe how you can estimate the weight of the dirt without using a ruler.

_____

_____

_____

_____

_____

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Page 7

36 The customer service department of a software company recorded the number of daily phone calls it received about a new product. The table below shows the data recorded each day during the first week and the tenth week.
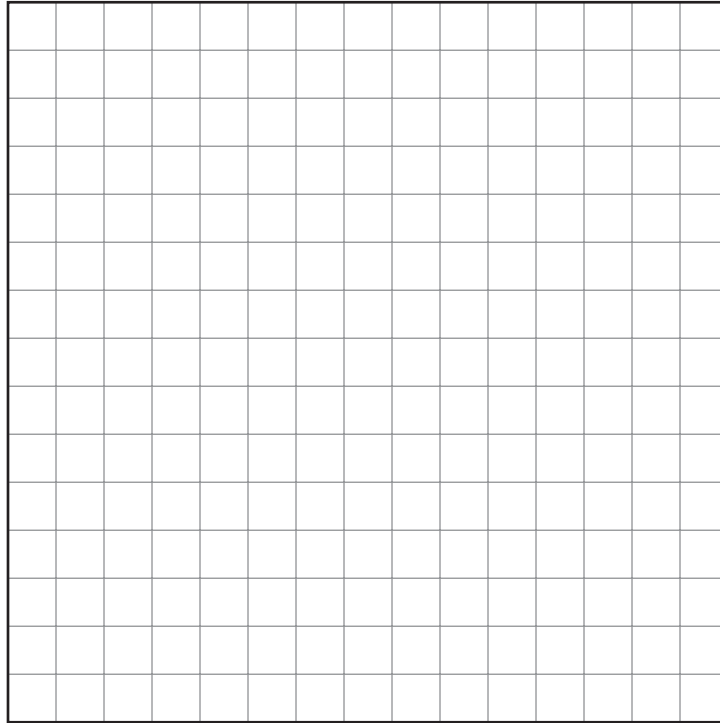
NUMBER OF PHONE CALLS

Day	Week 1	Week 10
Monday	38	23
Tuesday	41	17
Wednesday	36	20
Thursday	29	19
Friday	32	14

On the grid below, create a double-bar graph that shows the number of phone calls received each day during the first week and the tenth week.

Be sure to

- title the graph
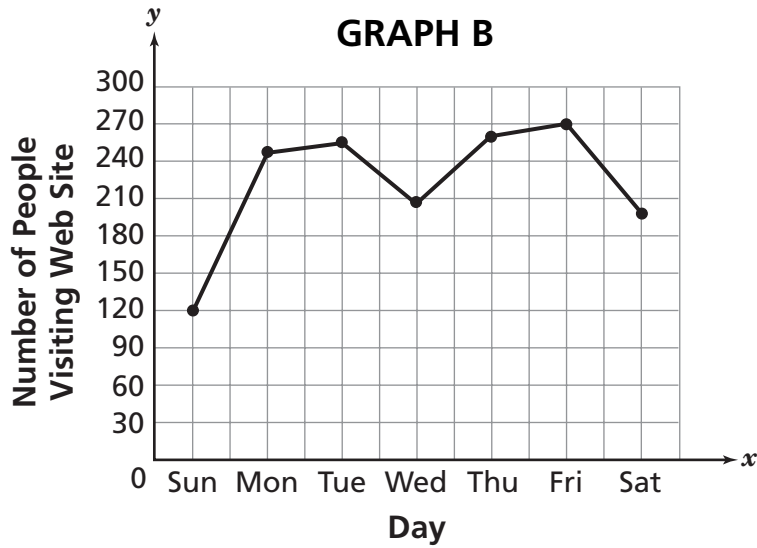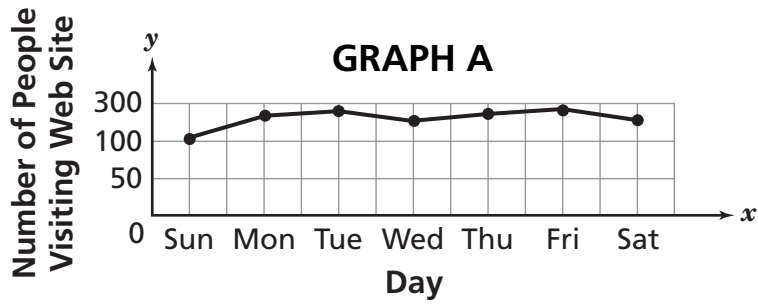- label the axes
- provide an appropriate key for the graph
- provide a scale for the graph
- graph all the data

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37 Dean recorded the number of people who visited his web site each day for a week. He graphed the data in two different ways.

GRAPH A

(Line graph: y-axis "Number of People Visiting Web Site" with values 50, 100, 300; x-axis "Day" with Sun, Mon, Tue, Wed, Thu, Fri, Sat)

GRAPH B

(Line graph: y-axis "Number of People Visiting Web Site" with values 30, 60, 90, 120, 150, 180, 210, 240, 270, 300; x-axis "Day" with Sun, Mon, Tue, Wed, Thu, Fri, Sat)

Which one of the two graphs is misleading?

Answer _____

On the lines below, explain why the graph you chose is misleading.

_____

_____

_____

_____

_____

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Page 11

38 The table below shows the number of Earth days it takes for two of Jupiter's moons to make one full orbit around Jupiter.

JUPITER'S MOONS

Name	Orbit Time (in Earth Days)
Callisto	1.67×10^1
Themisto	1.3002×10^2

How **much longer,** in Earth days, does it take for Themisto to orbit Jupiter than it does for Callisto to orbit Jupiter? Write your answer in standard form.

Show your work.

Answer _____ Earth days

STOP

Place Student Label Here

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