



# ***New York State Testing Program***

## **Mathematics Test Book 1**

Grade

# **7**

**March 12–16, 2007**

**1**

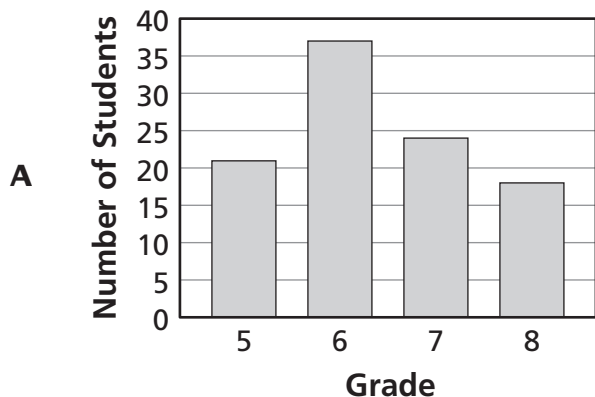
The table below shows the grade level of 100 students who took gymnastics classes last summer.

### GYMNASTICS CLASS

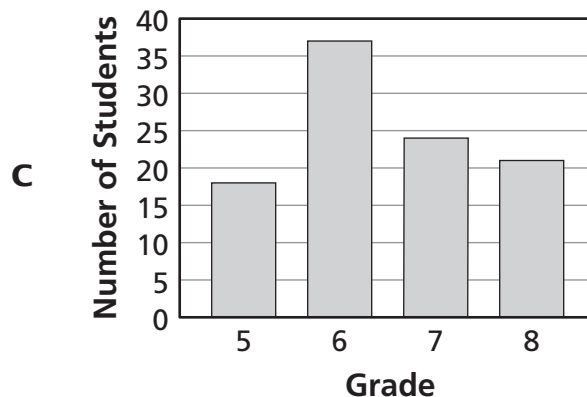
Grade	Number of Students
5	18
6	24
7	37
8	21

Which bar graph displays this data correctly?

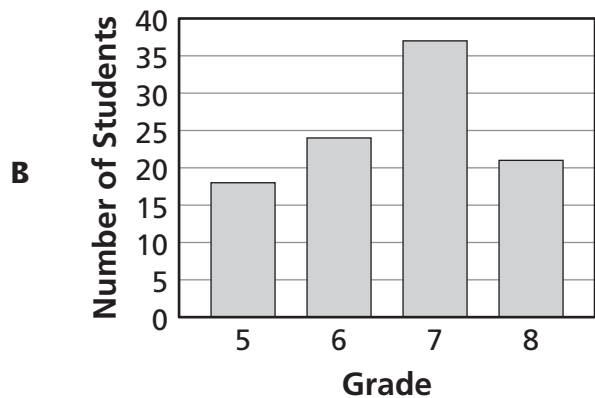
#### GYMNASTICS STUDENTS



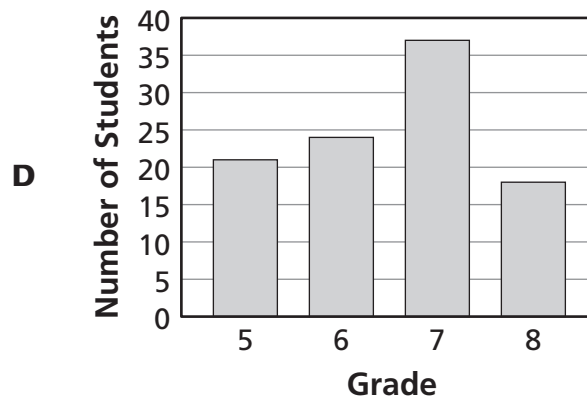
#### GYMNASTICS STUDENTS



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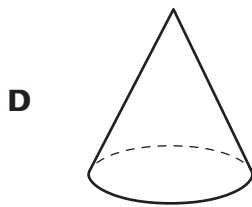
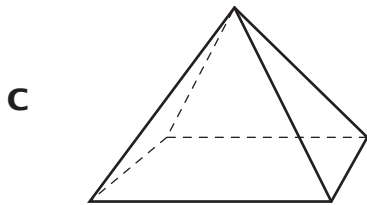
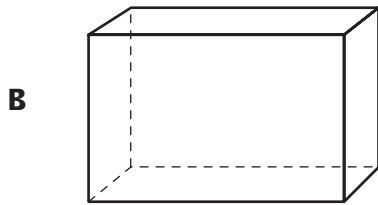
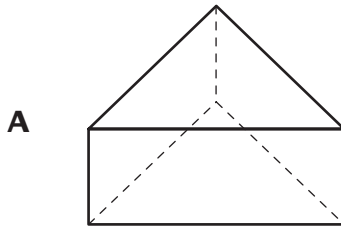
#### GYMNASTICS STUDENTS



**Go On**

2

All the figures below have at least one rectangular face **except** for which figure?



3

Mr. Snyder uses a 4-liter jug to water his plants. How many milliliters of water does Mr. Snyder need to fill the jug?

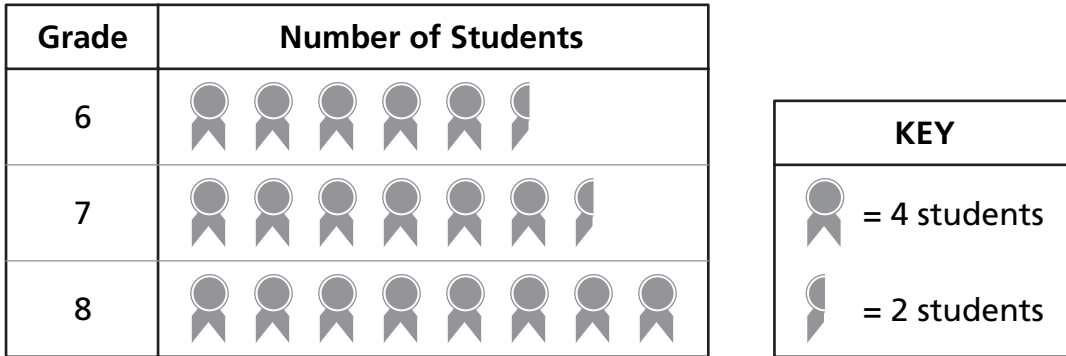
1 liter = 1,000 milliliters

- A 40
- B 400
- C 4,000
- D 40,000

4

The pictograph below shows the number of students who participated in the Franklin Middle School science fair.

**FRANKLIN MIDDLE SCHOOL SCIENCE FAIR**



How many **7th-grade** students participated in the science fair?

- A 22
- B 24
- C 26
- D 28

5

The rectangular prism shown below has how many faces?



- A 1
- B 2
- C 4
- D 6

**Go On**

**6**

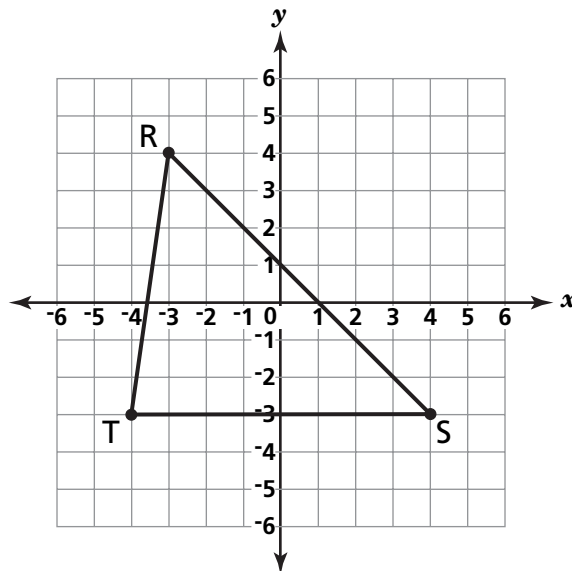
Martin works at Shea Stadium. On a hot day, he sells 200 pints of bottled water. How many gallons of water does he sell?

$1 \text{ gallon} = 8 \text{ pints}$
--------------------------------------

- A 25
- B 50
- C 100
- D 400

**7**

Triangle RST is shown on the coordinate grid below.



What are the coordinates of point T?

- A (-3, -4)
- B (-3, 4)
- C (-4, -3)
- D (-4, 3)

**8**

The temperature on a winter night in Kansas is  $-6^\circ$  Celsius. The temperature decreases by  $8^\circ$  Celsius. What is the new temperature, in degrees Celsius?

- A  $-2^\circ\text{C}$
- B  $2^\circ\text{C}$
- C  $-14^\circ\text{C}$
- D  $14^\circ\text{C}$

**9**

The set below contains only which type of numbers?

$(-1, 5, 6\frac{1}{2}, 15, 3.75, 36, \sqrt{81}, 100)$

- A mixed numbers
- B rational numbers
- C whole numbers
- D counting numbers

***Go On***

**10**

Pam wants to buy a suitcase. The order form she uses is shown below.

### SUITCASE ORDER FORM

Colors available (choose one):  Tan  Blue  Green  Black  Red

Sizes available:  Small  Medium  Large

Material:  Leather  Nylon

How many different combinations of color, size, and material are possible for Pam's suitcase?

- A 10
- B 15
- C 24
- D 30

**11**

This month, Drew worked six hours less than twice the number of hours,  $h$ , he worked last month. What expression represents the number of hours Drew worked this month?

- A  $2 - 6h$
- B  $2h - 6$
- C  $6 - 2h$
- D  $6h - 2$

**12**

Which number is an irrational number?

- A  $\sqrt{2}$
- B  $-\frac{4}{3}$
- C  $1.\bar{8}$
- D  $-\sqrt{9}$

- 13** The annual salaries of the employees working at Kevin’s restaurant are listed below.

\$21,750.00	\$33,500.00	\$18,900.00	\$22,965.00
\$30,080.00	\$47,250.00	\$37,750.00	\$46,500.00

What is the range for these salaries?

- A \$24,750.00
- B \$25,500.00
- C \$27,600.00
- D \$28,350.00

- 14** Stacy starts a savings account with \$15. Each month she deposits \$10 more into her account. Stacy now has saved \$75. Which equation can be used to determine how many months,  $m$ , Stacy has deposited money into her savings account?

- A  $10m \cdot 15 = 75$
- B  $15m \cdot 10 = 75$
- C  $10m + 15 = 75$
- D  $15m + 10 = 75$

- 15** What is the greatest common factor of 42, 63, and 105?

- A 3
- B 7
- C 14
- D 21

***Go On***



**16**

The temperature of the sun at its core is approximately 27 million degrees Fahrenheit. What is 27 million written in scientific notation?

- A  $2.7 \times 10^6$
- B  $2.7 \times 10^7$
- C  $27 \times 10^6$
- D  $27 \times 10^7$

**17**

A reporter for a teen magazine surveys teenagers leaving Hot Shots clothing store to determine which brand of clothing teens like best. Which statement best explains why the results of this survey may **not** be valid?

- A The survey should have been conducted online.
- B The group surveyed consisted only of teenagers.
- C The survey was conducted by a reporter from only one magazine.
- D The group surveyed consisted only of teenagers who shopped at the same store.

**18**

Connor is researching four types of memory modules for his computer. The data are shown in the table below.

Module	Amount of Memory (in bytes)
W	$3.64 \times 10^8$
X	$1.28 \times 10^9$
Y	$2.56 \times 10^9$
Z	$5.12 \times 10^8$

Connor wants to buy the module with the most memory. Which module should he buy?

- A Module W
- B Module X
- C Module Y
- D Module Z

**19**

The expression below represents the total cost in dollars, including shipping, for a certain number of music CDs,  $m$ .

$$8m + 5$$

Based on the expression above, what is the total cost for 4 music CDs?

- A \$13
- B \$17
- C \$32
- D \$37

**Go On**

**20**

What is the least common multiple of 9, 18, and 21?

- A 3
- B 81
- C 126
- D 3,402

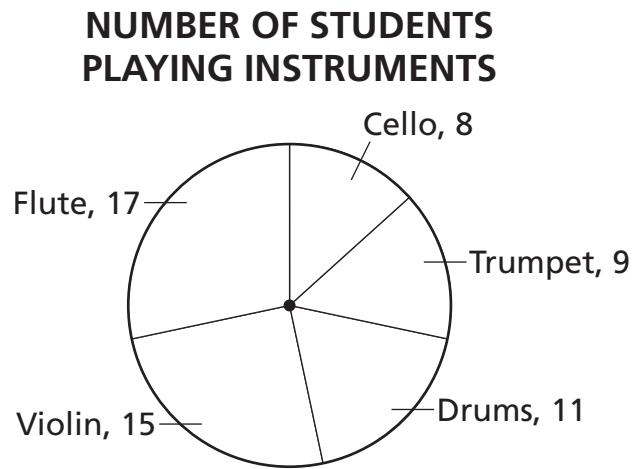
**21**

Rachel has 5 silver bracelets and 2 gold bracelets in her jewelry box. Rachel randomly picks one bracelet. Which statement **best** describes which bracelet she will probably pick?

- A She probably will pick a gold bracelet.
- B She definitely will pick a gold bracelet.
- C She probably will pick a silver bracelet.
- D She definitely will pick a silver bracelet.

22

The circle graph below shows the number of students who play instruments in the school orchestra.



What percent of the total number of students in the school orchestra play the violin?

- A 15%
- B 25%
- C 33%
- D 75%

23

What is the prime factorization of 144 written in exponential form?

- A  $2^24^2$
- B  $2^33^2$
- C  $2^34^2$
- D  $2^43^2$

***Go On***

**24**

The table below shows the bowling scores of 125 students.

### BOWLING SCORES

Scores	Number of Students
Under 100	28
100–125	52
126–150	30
151 and up	15

What is the experimental probability that the next student who bowls will have a score that is 126 or more?

A  $\frac{15}{125}$

B  $\frac{30}{125}$

C  $\frac{45}{125}$

D  $\frac{80}{125}$

**25**

Between what two whole numbers is  $+\sqrt{125}$ ?

A 63 and 64

B 62 and 63

C 12 and 13

D 11 and 12

**26**

An art teacher mixes 20 ounces of yellow paint with 8 ounces of red paint. How many ounces of yellow paint would she need to mix with 18 ounces of red paint to maintain the same proportion?

- A 3
- B 10
- C 40
- D 45

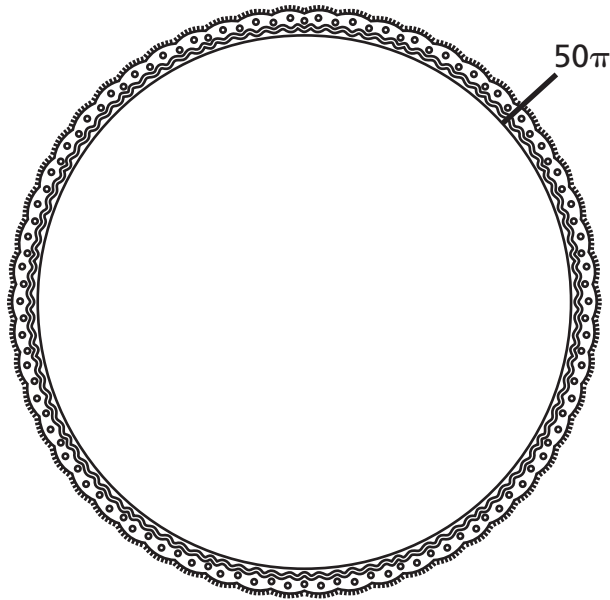
**27**

In a basketball contest, Chad predicted he would make 85 percent of his shots. He actually made 18 out of 20 shots. How did Chad's prediction compare with his actual results?

- A His prediction was the same as his actual results.
- B His prediction was lower than his actual results.
- C His prediction was higher than his actual results.
- D His prediction cannot be compared with his actual results.

***Go On***

Jordan sews a lace border  $50\pi$  inches long around the edge of a circular tablecloth.



[not drawn to scale]

$$\text{circumference} = 2\pi r$$

What is the length of the radius from the inside edge of the lace to the center of the circular tablecloth?

- A 5 inches
- B 25 inches
- C 50 inches
- D 100 inches

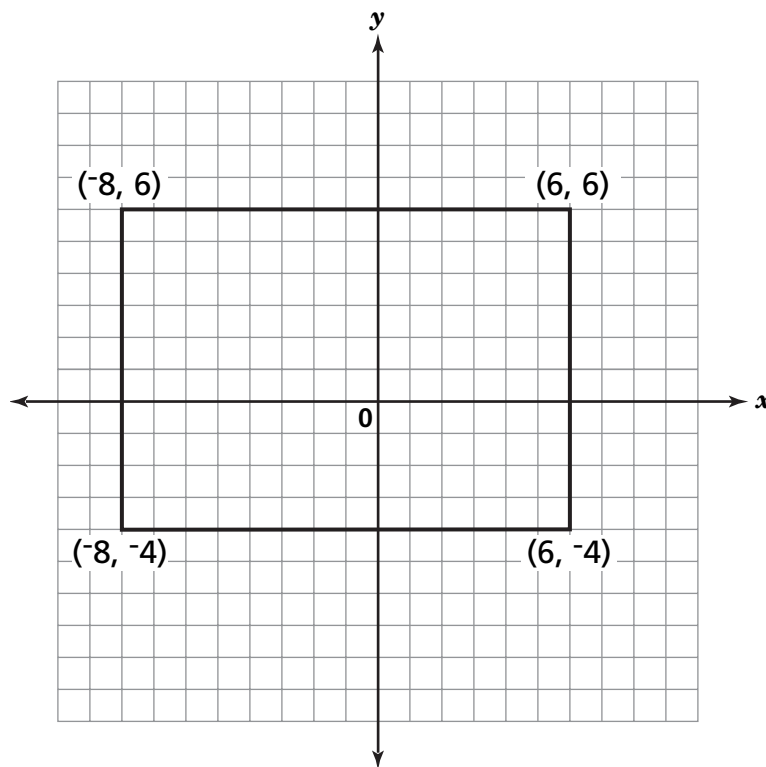
**29**

What would be the best method to determine the mass of a penny?

- A Weigh the penny on a scale to the nearest gram.
- B Weigh the penny on a scale to the nearest kilogram.
- C Measure the diameter of the penny with a ruler, and multiply by  $\pi$ .
- D Measure the radius of the penny with a ruler, square the result, and multiply by  $\pi$ .

**30**

Jamal's deck is in the shape of a polygon and is shown on the grid below.



What is the area of Jamal's deck?

- A 28 square units
- B 48 square units
- C 100 square units
- D 140 square units

**STOP**

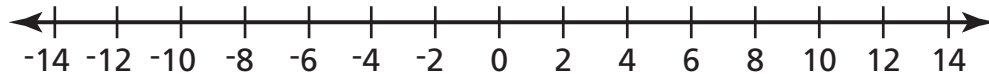


**31**

The temperature in St. Cloud, Minnesota, was  $-4^{\circ}\text{F}$  (Fahrenheit) on January 27 and  $13^{\circ}\text{F}$  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** \_\_\_\_\_  $^{\circ}\text{F}$

**Go On**

The table below shows geographic information about Antarctica.

### ANTARCTICA

Area	$1.4 \times 10^7$ square kilometers
Lowest elevation	$-2.56 \times 10^3$ meters

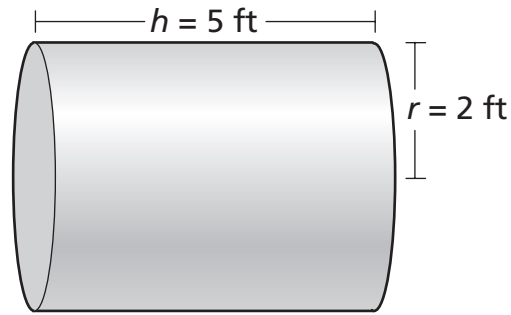
Write the numbers, in standard form, for the area and the lowest elevation of Antarctica.

**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**Go On**

**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** \_\_\_\_\_

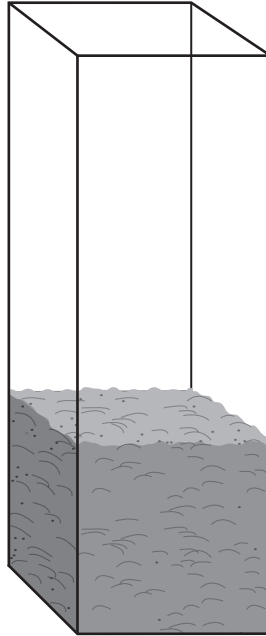
Using the equation above, find the number of tickets Juan can buy.

**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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**Go On**

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.

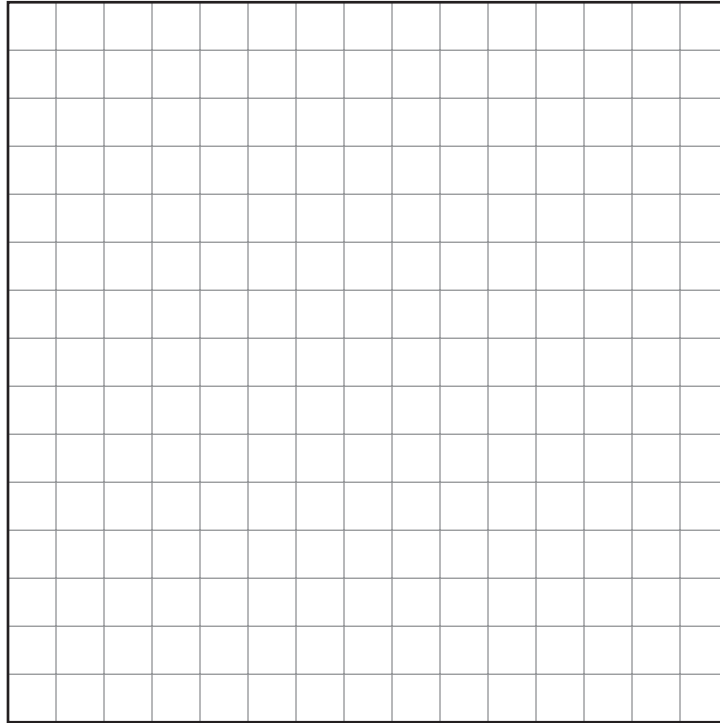
### NUMBER OF PHONE CALLS

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

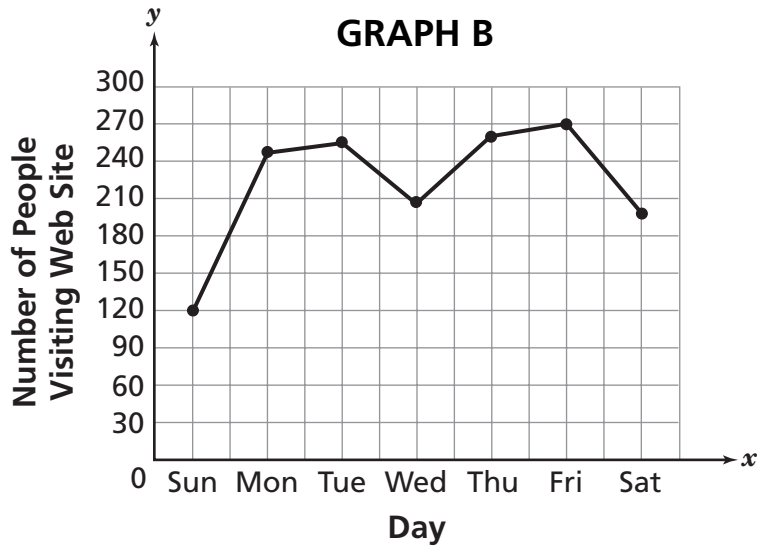
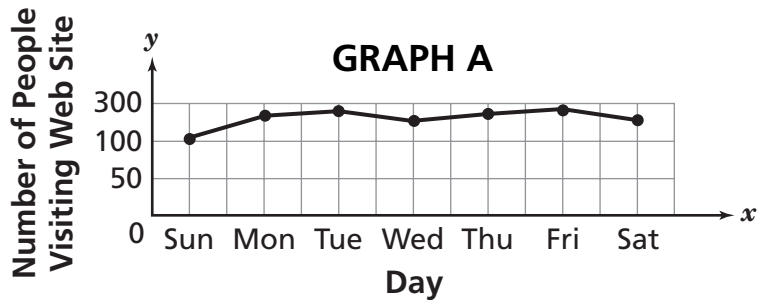
- title the graph
- label the axes
- provide an appropriate key for the graph
- provide a scale for the graph
- graph all the data



***Go On***

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.



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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***Go On***

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	$1.67 \times 10^1$
Themisto	$1.3002 \times 10^2$

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**

**Standard and Performance Indicator Map with Answer Key  
2007 Grade 7 Mathematics**

<b>Question</b>	<b>Type</b>	<b>Points</b>	<b>Strand</b>	<b>Content Performance Indicator</b>	<b>Answer Key</b>
<b>Book 1</b>					
1	Multiple Choice	1	Statistics and Probability	7.S.6	B
2	Multiple Choice	1	Geometry	7.G.3	D
3	Multiple Choice	1	Measurement	7.M.2	C
4	Multiple Choice	1	Statistics and Probability	7.S.6	C
5	Multiple Choice	1	Geometry	7.G.3	D
6	Multiple Choice	1	Measurement	7.M.2	A
7	Multiple Choice	1	Geometry	6.G.10	C
8	Multiple Choice	1	Number Sense and Operations	7.N.12	C
9	Multiple Choice	1	Number Sense and Operations	7.N.1	B
10	Multiple Choice	1	Statistics and Probability	6.S.11	D
11	Multiple Choice	1	Algebra	7.A.1	B
12	Multiple Choice	1	Number Sense and Operations	7.N.2	A
13	Multiple Choice	1	Statistics and Probability	7.S.4	D
14	Multiple Choice	1	Algebra	6.A.3	C
15	Multiple Choice	1	Number Sense and Operations	7.N.8	D
16	Multiple Choice	1	Number Sense and Operations	7.N.5	B
17	Multiple Choice	1	Statistics and Probability	7.S.9	D
18	Multiple Choice	1	Number Sense and Operations	7.N.7	C
19	Multiple Choice	1	Algebra	6.A.2	D
20	Multiple Choice	1	Number Sense and Operations	7.N.9	C
21	Multiple Choice	1	Statistics and Probability	7.S.10	C
22	Multiple Choice	1	Statistics and Probability	7.S.6	B
23	Multiple Choice	1	Number Sense and Operations	7.N.10	D
24	Multiple Choice	1	Statistics and Probability	7.S.8	C
25	Multiple Choice	1	Number Sense and Operations	7.N.18	D

**Standard and Performance Indicator Map with Answer Key  
Grade 7 (continued)**

Question	Type	Points	Strand	Content Performance Indicator	Answer Key
26	Multiple Choice	1	Algebra	6.A.5	D
27	Multiple Choice	1	Statistics and Probability	7.S.12	B
28	Multiple Choice	1	Geometry	7.G.1	B
29	Multiple Choice	1	Measurement	7.M.9	A
30	Multiple Choice	1	Geometry	6.G.11	D
<b>Book 2</b>					
31	Extended Response	3	Number Sense and Operations	7.N.13	n/a
32	Short Response	2	Number Sense and Operations	7.N.6	n/a
33	Extended Response	3	Geometry	7.G.4	n/a
34	Extended Response	3	Algebra	6.A.4	n/a
35	Short Response	2	Measurement	7.M.13	n/a
36	Extended Response	3	Statistics and Probability	7.S.3	n/a
37	Short Response	2	Statistics and Probability	7.S.7	n/a
38	Short Response	2	Number Sense and Operations	7.N.7	n/a