# New York State Testing Program

## Mathematics Test
### Book 1

Grade **7**

March 9–13, 2009

## 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 choosing your response.

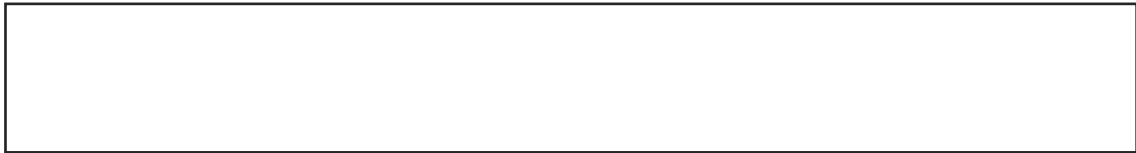This picture means that you will use your ruler.

This picture means that you will use your protractor.

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**Book 1**

**Page 1**

## Sample A

Use your ruler to help you solve this problem.

What is the area, in square centimeters, of the rectangle shown below?
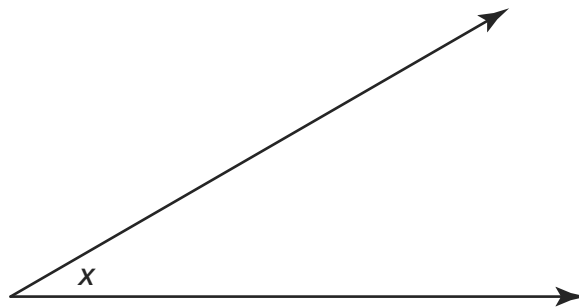
<div style="border: 1px solid black; height: 140px;"></div>

A    15

B    17

C    30

D    34

## Sample B

Use your protractor to help you solve this problem.

What is the measure of angle *x* shown below?



A    30°

B    45°

C    90°

D    150°

**STOP**

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**Page 3**

**1** Which set contains only whole numbers?

A   {0, 3, 8, 17}

B   {0, $\sqrt{3}$, $\pi$, 5}

C   {−5, 0, 3, 8}

D   $\left\{2, \dfrac{9}{2}, 7, \dfrac{25}{3}\right\}$

**2** The table below shows the number of computers a company sold in four different years.

**COMPUTERS SOLD**

| Year | Computers Sold |
|------|----------------|
| 2002 | $3.2 \times 10^5$ |
| 2003 | $8.4 \times 10^3$ |
| 2004 | $5.9 \times 10^5$ |
| 2005 | $1.2 \times 10^4$ |

In what year did the company sell the **most** computers?

A   2002

B   2003

C   2004

D   2005

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**Page 5**

**3**  What is the surface area, in square centimeters, of a rectangular prism that has a length of 10 centimeters, a width of 5 centimeters, and a height of 6 centimeters?

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

**A**  140

**B**  160

**C**  280

**D**  300

**4**  After school, the members of the car club counted the colors of cars parked in the school parking lot. They recorded their data on the bar graph below.

**CARS IN THE SCHOOL PARKING LOT**
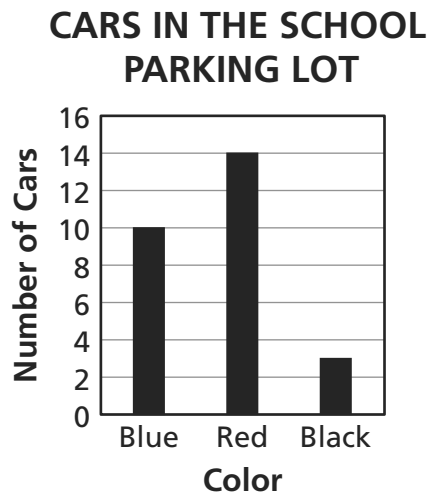
Based on information in the graph, which statement is true?
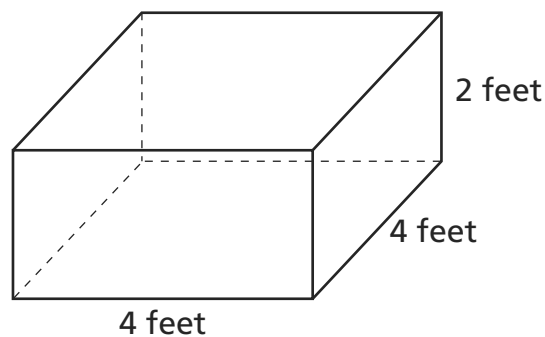
**A**  There are more black cars than red cars.

**B**  There are more black cars than blue cars.

**C**  There are more blue cars than red cars.

**D**  There are more blue cars than black cars.

**5**  The mass of a bag of potatoes is 4.5 kilograms. What is the mass, in grams, of the bag of potatoes?

| 1 kilogram = 1,000 grams |

**A**    45

**B**    450

**C**    4,500

**D**    45,000

**6**  The figure below is a rectangular prism.



2 feet

4 feet

4 feet

[not drawn to scale]

Which statement is true about the faces of this prism?

**A**    All of the faces are squares.

**B**    None of the faces are squares.

**C**    Only two of the faces are squares.

**D**    Only four of the faces are squares.

*Go On*

**7** Eva surveys a large number of students at a movie theater about their favorite weekend activity. The table below shows the results of her survey.

## FAVORITE WEEKEND ACTIVITY

| Activity | Number of Students |
|---|---|
| Reading books | 16 |
| Playing sports | 24 |
| Playing video games | 30 |
| Watching movies | 130 |

Based on the results of her survey, Eva concludes that the favorite weekend activity of most students is watching movies. Which statement **best** describes Eva's conclusion?

**A**   Eva's conclusion is **not** valid because she surveyed only students.

**B**   Eva's conclusion is valid because she surveyed a large number of students.

**C**   Eva's conclusion is valid because she surveyed students from many schools.

**D**   Eva's conclusion is **not** valid because she surveyed students at a movie theater.

**8** The mass of a typical raindrop is $8.7 \times 10^{-5}$ grams. What is $8.7 \times 10^{-5}$ in standard form?

**A**   870,000

**B**   0.000087

**C**   8,700,000

**D**   0.0000087

**9** Which tool would be **most appropriate** for Natasha to use when finding the mass of a watermelon?

A  scale

B  inch ruler

C  meter stick

D  measuring cup

**10** Simplify the expression $(-4)(3)(-1)(-2)$.

A  4

B  $-4$

C  24

D  $-24$

**11** Dennis buys 5.5 liters of soda for a party. How many milliliters are equivalent to 5.5 liters?

| 1 liter = 1,000 milliliters |
|---|

A  55

B  550

C  5,500

D  55,000

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**12** Hiral performs an experiment by randomly selecting different-colored marbles from a jar. The results of his experiment are shown in the table below.

| Marble Color | Frequency |
|---|---|
| Green | 5 |
| Blue | 11 |
| Red | 8 |
| Yellow | 1 |

Based on the data, what is the probability that the next marble Hiral selects will be blue or red?

A    $\frac{1}{25}$

B    $\frac{6}{25}$

C    $\frac{19}{25}$

D    $\frac{24}{25}$

**13** Breanna researches the density of corn syrup for a science experiment. She finds that the mass of 50 milliliters of corn syrup is 69 grams. What is the density, in grams per milliliter, of corn syrup?

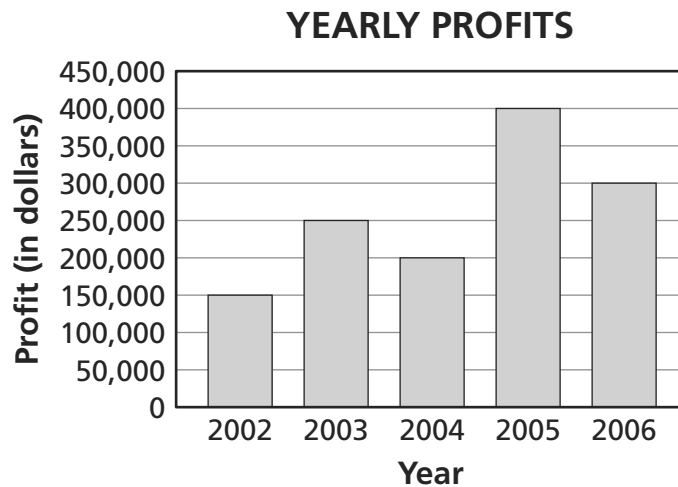$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

A    119

B    1.38

C    3,450

D    0.7246

Book 1

**14** Simplify the expression below.

$$\left|7 - 3^2\right| + 4$$

**A**  2

**B**  3

**C**  5

**D**  6

**15** The graph below shows a restaurant's profit each year for 5 years.

**YEARLY PROFITS**



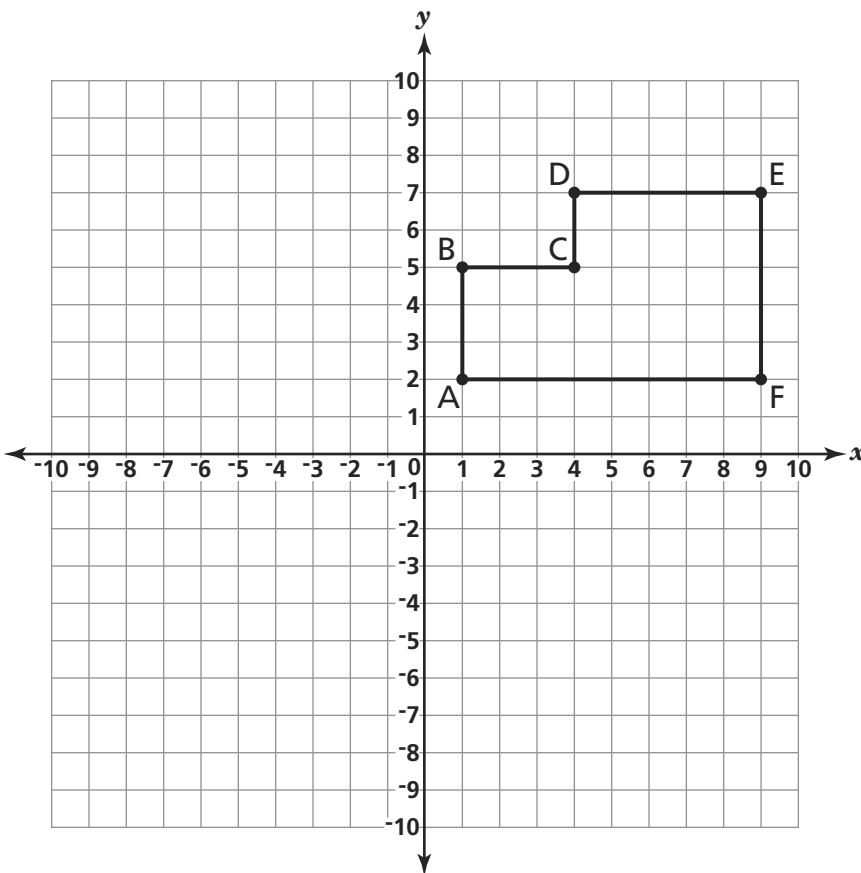Which year had the **greatest** increase in profit from the year before?

**A**  2003

**B**  2004

**C**  2005

**D**  2006

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**16** What whole number is the square root of 169?

A    12

B    13

C    14

D    15

**17** Figure ABCDEF is plotted on the coordinate plane below.



| KEY |
| --- |
| ☐ = 1 square unit |

What is the area, in square units, of the figure?

A    40

B    34

C    26

D    25

**18** The table below shows the low temperatures, in degrees Fahrenheit (°F), in Millie's hometown for 5 days in February.

### FEBRUARY LOW TEMPERATURES

| Day | Temperature |
|-----------|-------------|
| Monday | 5°F |
| Tuesday | 8°F |
| Wednesday | 12°F |
| Thursday | 7°F |
| Friday | 2°F |

What is the range, in degrees Fahrenheit, of the data in the table?

**A**    2°

**B**    7°

**C**    10°

**D**    12°

**19** The length of each side of a cube is 2.05 centimeters long. What is the best **estimation** of the surface area of the cube in square centimeters?

| Surface Area $= 6s^2$ |
|---|

**A**    16

**B**    24

**C**    32

**D**    48

*Go On*

**20** What is the greatest common factor (GCF) of 450 and 735?

**A**  3

**B**  5

**C**  15

**D**  35

**21** Four students predicted how long it would take them to run around a city block. Their predictions and actual times are shown in the table below.

| Student | Predicted Time (in seconds) | Actual Time (in seconds) |
|---------|-----------------------------|--------------------------|
| Angie   | 74                          | 63                       |
| Rachael | 61                          | 70                       |
| Thomas  | 68                          | 76                       |
| Jordan  | 65                          | 72                       |

Which student's predicted time is closest to his or her actual time?

**A**  Angie

**B**  Rachael

**C**  Thomas

**D**  Jordan

**22** What expression represents 16 more than 5 times a number, *n*?

**A**   $5n + 16$

**B**   $5n - 16$

**C**   $16n + 5$

**D**   $16n - 5$

**23** The temperature, in degrees Fahrenheit (°F), decreased at a constant rate from 0°F to −35°F in 5 hours. By how many degrees did the temperature decrease **per hour**?

**A**   5°

**B**   7°

**C**   30°

**D**   35°

**24** A toy box has a volume of $\frac{1}{3}$ cubic yard. What is the volume of this toy box in cubic feet?

| 1 cubic yard = 27 cubic feet |
| --- |

**A**   1

**B**   $\frac{1}{9}$

**C**   $\frac{1}{81}$

**D**   9

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**25** Sarah predicts that 15 percent of all the birds she spots while bird watching will be robins. At the end of the day, she records that 10 out of the 25 birds she spotted were robins. How does Sarah's prediction compare with the actual results?

**A** Sarah's prediction is too low.

**B** Sarah's prediction is too high.

**C** Sarah's prediction cannot be compared to the actual results.

**D** Sarah's prediction is exactly the same as the actual results.

**26** If the circumference of a circle is doubled, how does the diameter of the circle change?

**A** The diameter stays the same.

**B** The diameter becomes half as long.

**C** The diameter becomes twice as long.

**D** The diameter becomes four times as long.

**27** Peter has 6 sweaters, 4 pairs of jeans, and 3 pairs of shoes. How many different outfits can Peter make using one sweater, one pair of jeans, and one pair of shoes?

    **A**    13

    **B**    36

    **C**    72

    **D**    144

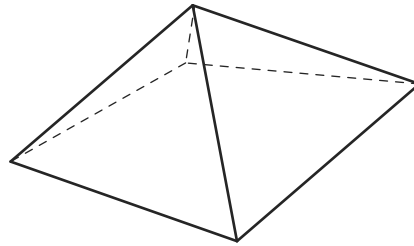**28** Claire wants to find the mass of her suitcase. Which unit of measure would be **best** for her to use?

    **A**    tons

    **B**    liters

    **C**    meters

    **D**    kilograms

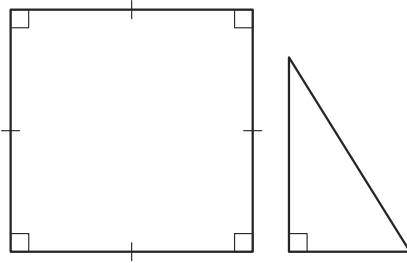**29** What equation represents three less than five times a number is twelve?

    **A**    $3 - 5x = 12$

    **B**    $5x - 3 = 12$

    **C**    $5(3 - x) = 12$

    **D**    $5(x - 3) = 12$

*Go On*

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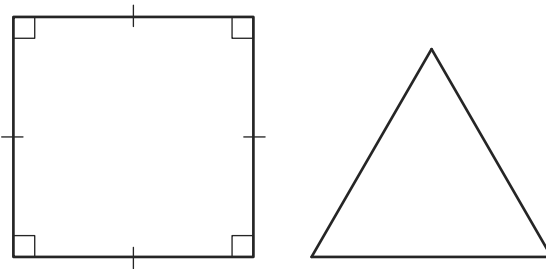
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**30** What shape makes up the base and what shape makes up the faces of the figure below?

A

B

C

D
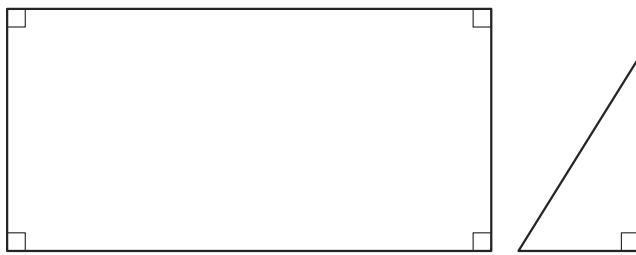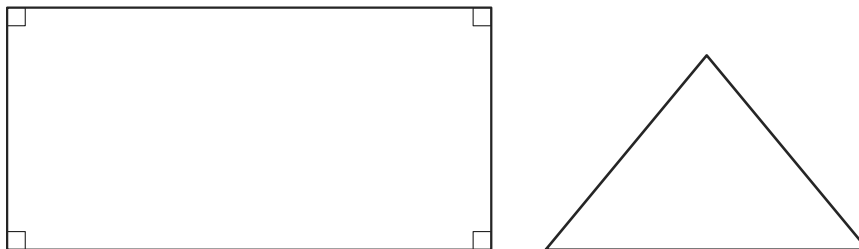
# Grade 7

## Mathematics Test

## Book 1

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