New York State Testing Program

Mathematics

Book 1

Grade **7**

Sample Test 2005

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 choosing your response.

This picture means that you will use your ruler.

This picture means that you will use your protractor.

Go On

Sample A

What is the greatest common factor of 12, 18, and 24?

A   2

B   3

C   6

D   12

Sample B

Which expression represents four more than three times a number?

F $7x$

G $12x$

H $4x + 3$

J $3x + 4$

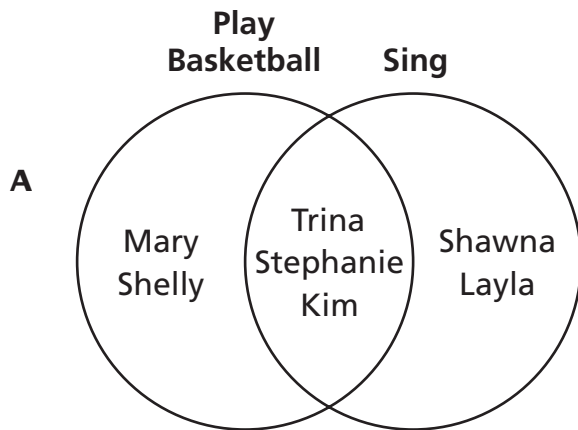**1** What is the least common multiple of 3, 6, and 27?

A   3

B   27

C   54

D   81

2 Anna works as a painter. She charges $130 for paint supplies and $25 for each hour, h, she works. Which expression represents the total amount of money Anna charges?
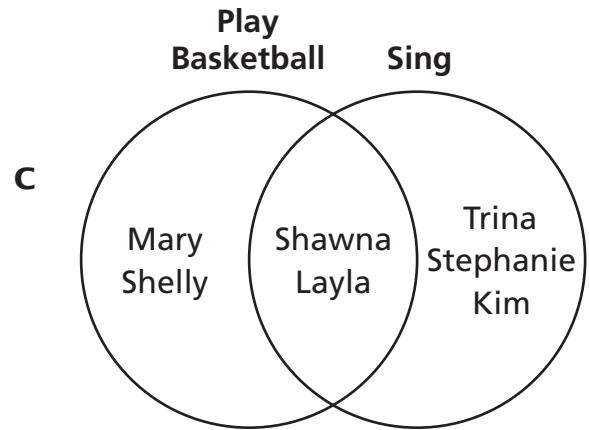
F $(130 + 25)h$

G $130 + 25h$

H $130h + 25$

J $130 + (25 + h)$

3 Seven girls in Ms. Bauman's class participate in at least one school activity. Mary and Shelly play basketball only; Shawna and Layla sing only; and Trina, Stephanie, and Kim play basketball **and** sing. Which Venn diagram correctly represents the data?
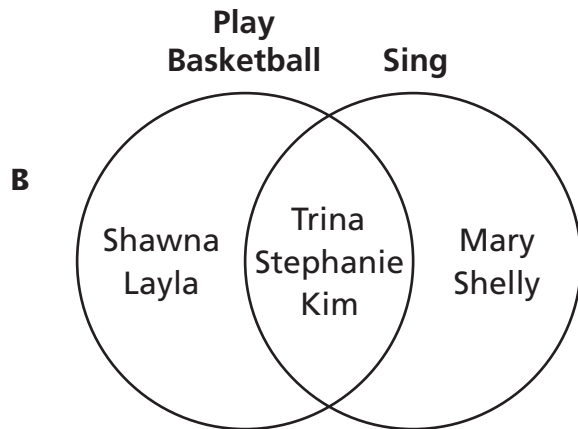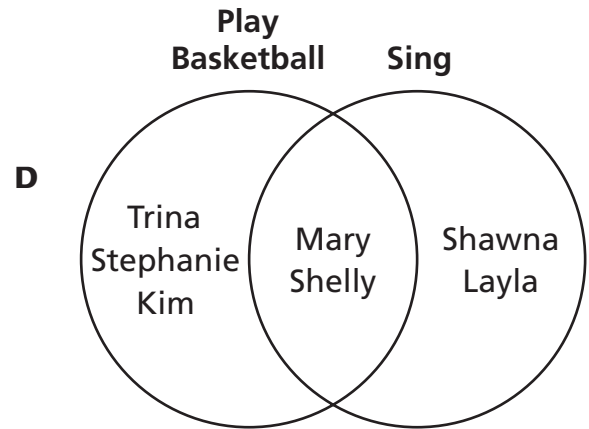
SCHOOL ACTIVITIES

A

Play Basketball — Sing

Mary Shelly | Trina Stephanie Kim | Shawna Layla

SCHOOL ACTIVITIES

C

Play Basketball — Sing

Mary Shelly | Shawna Layla | Trina Stephanie Kim

SCHOOL ACTIVITIES

B

Play Basketball — Sing

Shawna Layla | Trina Stephanie Kim | Mary Shelly

SCHOOL ACTIVITIES

D

Play Basketball — Sing

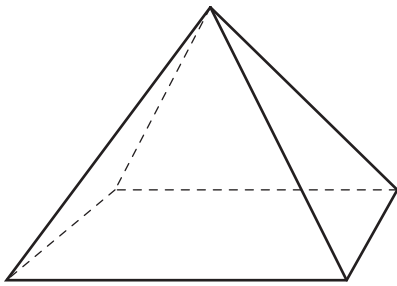Trina Stephanie Kim | Mary Shelly | Shawna Layla

Go On

4   Last year 9.9×10^5 people attended the New York State Fair. What is this number expressed in standard form?

F   9,900

G   99,000

H   990,000

J   9,900,000

5   A pyramid is shown below.

What shape is the base of the pyramid?

A   pentagon

B   square

C   triangle

D   trapezoid

6   Tonysha has two bags. Each bag has three objects in it. The first bag has one dime, one nickel, and one penny. The second bag has one red button, one blue button, and one yellow button. Tonysha picks one object from each bag. How many possible combinations of two objects can she pick?

F   3

G   6

H   9

J   15

7 Which number is an irrational number?

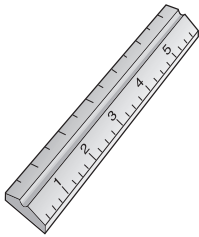A $\sqrt{3}$

B -13.5

C $\dfrac{7}{11}$

D $\dfrac{1}{\sqrt{9}}$

8 Which tool and technique is used to measure the surface area of an object?
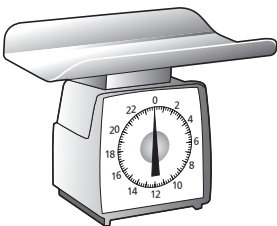
F measure the sides of the object

G compare the object to an object whose weight is already known

H put the object in a cup of water to see how much water it displaces

J find the weight of the object

Go On

9 Eric's mother wants to help him with his math homework. She puts 24 cookies in a cookie jar. Twelve of the cookies are chocolate chip, 8 are oatmeal, and 4 are peanut butter. She then has Eric select a cookie from the jar without looking. Next, without replacing the first cookie, Eric picks a second cookie without looking in the jar. What is the probability Eric will pick an oatmeal cookie first and a chocolate chip cookie second?

A $\dfrac{1}{6}$

B $\dfrac{4}{23}$

C $\dfrac{5}{6}$

D $\dfrac{59}{69}$

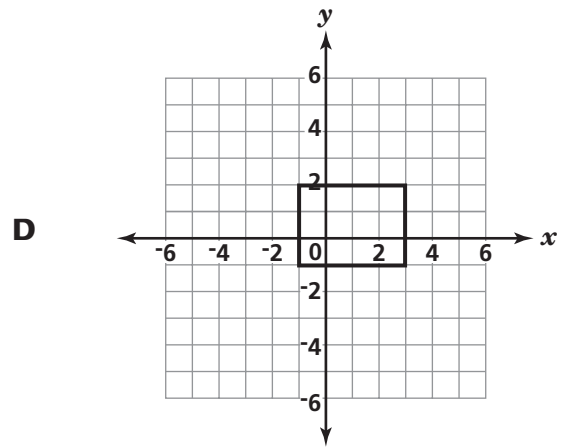**10** Simplify the expression below.

$3^3 - 2^2$

F 1
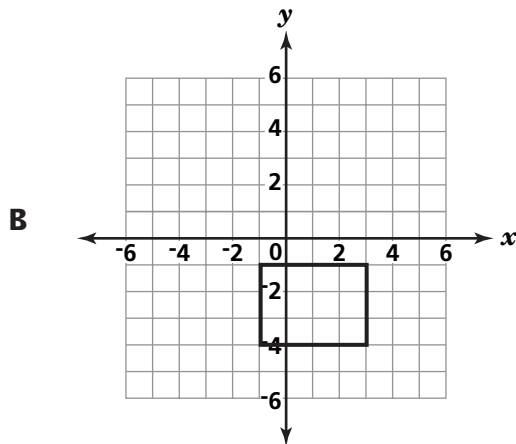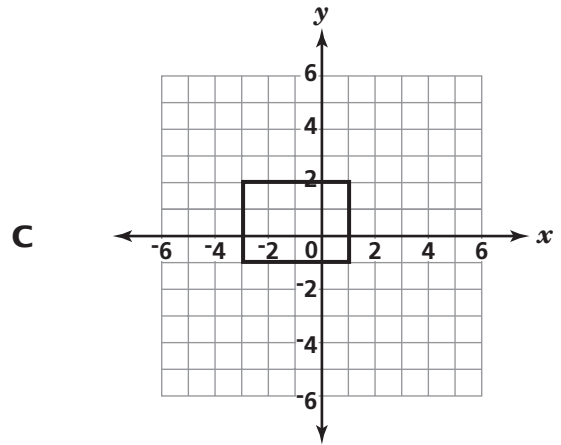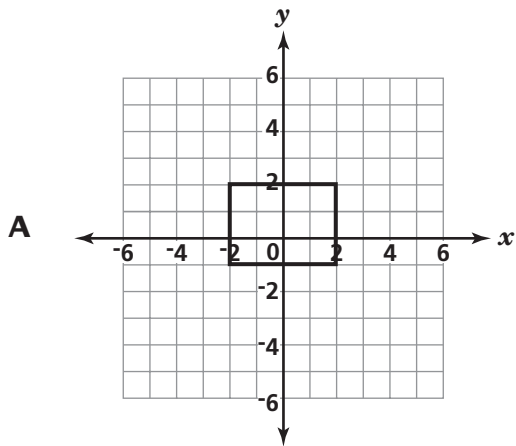
G 5

H 23

J 25

11 Which figure below represents a rectangle with vertices $(3, 2)$, $(-1, 2)$, $(-1, -1)$, and $(3, -1)$?

A

B

C

D

12 Jacob received the following scores on his last five science tests.

  81, 73, 80, 94, 97

What is the range of Jacob's scores for these five science tests?

F   16
G   24
H   81
J   85

13 What is the greatest common factor of 12, 16, and 20?

A   2
B   4
C   6
D   12

14 How many milliliters are equal to 0.7 liters?

  1 liter = 1, 000 milliliters

F   0.007
G   0.07
H   70
J   700

15 Derek conducts a probability experiment for his mathematics class. He uses the ten cards shown below.

| Card 1 Black | Card 2 Black | Card 3 Black | Card 4 White | Card 5 White |
| Card 6 White | Card 7 White | Card 8 Gray | Card 9 Gray | Card 10 Gray |

Derek randomly picks one of the ten cards from a container, looks at the color, and replaces the card. He repeats this 100 times. How many times would you expect Derek to pick a white card?

A 20 times

B 30 times

C 40 times

D 50 times

Go On

16   On Friday, Extreme View Helicopter Tours flew 34 times. They flew the same number of times on Saturday as they did on Sunday. The total number of times they flew for the three days was 118. How many times did Extreme View Helicopter Tours fly on Saturday?

F   34

G   42

H   59

J   84

17   What is "two more than the quotient of six and a number, *n*," written as an algebraic expression?

A $6n + 2$

B $6n - 2$

C $\dfrac{6}{n} + 2$

D $\dfrac{6}{n} - 2$

18   A spinner is divided into five equal sections numbered 1 through 5. Predict how many times out of 240 spins the spinner is most likely to stop on an odd number.

F   80

G   96

H   144

J   192

19 Sarah builds a dollhouse. The floor of the dollhouse is square. Sarah covers the floor with 144 square inches of tile. How long, in inches, is one side of the dollhouse floor?

A 12

B 38

C 72

D 144

20 Kevin designs a sprinkler system for his yard. One rotation of the sprinkler waters a circle with an area of 225π square feet. What is the radius, r, of the circle the rotating sprinkler waters?
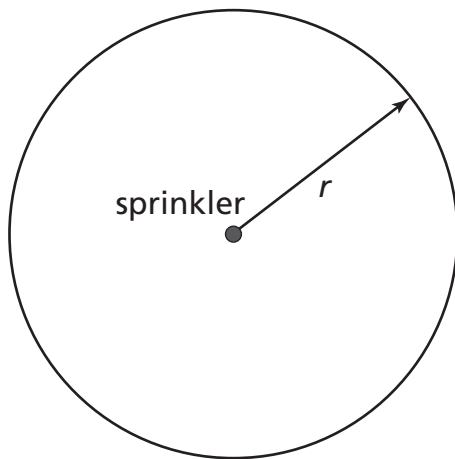
$$A = \pi \times r^2$$

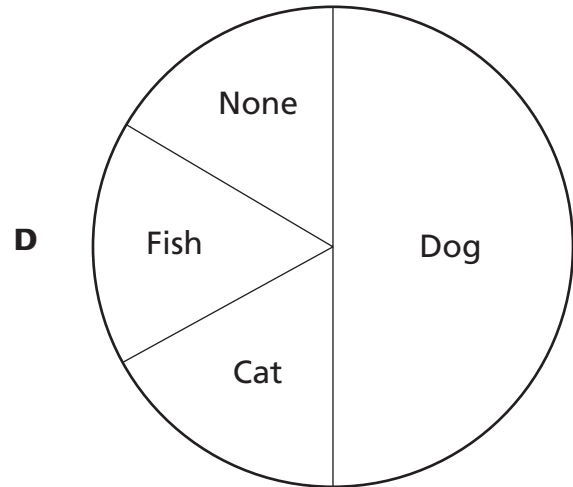**F** 15 feet

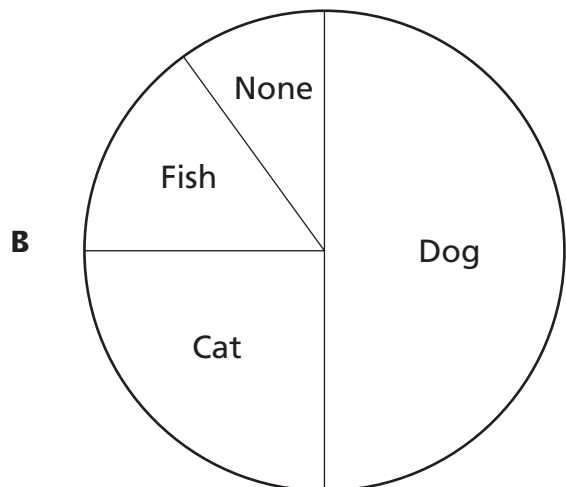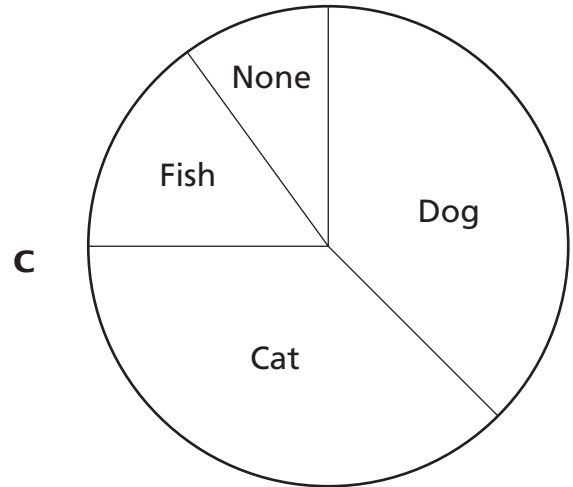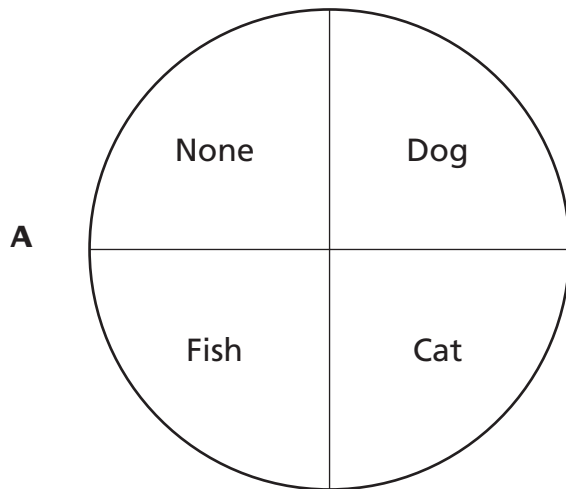**G** 25 feet

H 30 feet

J 47 feet

Go On

21 A pet store owner surveys 20 customers to determine what types of pets they own. The survey results are shown in the table below.

TYPES OF PETS

Pet	Number Owned
Dog	~~IIII~~ ~~IIII~~
Cat	~~IIII~~
Fish	III
None	II

Which circle graph best represents the data in the table?

A

None | Dog
Fish | Cat

C

None
Fish
Dog
Cat

B

None
Fish
Dog
Cat

D

None
Fish
Dog
Cat

22 Which number has the greatest value?

F 6.7×10^4

G 7.6×10^{-4}

H 8.9×10^3

J 9.8×10^{-3}

23 How many pounds is 24 ounces?

1 pound = 16 ounces

A 1

B 1.5

C 2

D 2.5

24 What is the area of the rectangle drawn on the coordinate plane shown below?
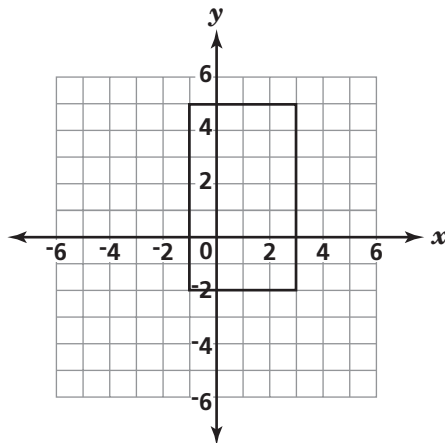
F 21 square units

G 24 square units

H 28 square units

J 32 square units

Go On

25 Jesse predicted that his batting average after the first 5 games of the season would be higher than .300.

The table below records Jesse's hits and times at bat during the first 5 games. Batting average is equal to hits divided by times at bat.

JESSE'S HITTING DURING HIS FIRST FIVE GAMES

Games	Times at Bat	Hits
1	4	0
2	5	1
3	4	2
4	3	1
5	4	2

How accurate was Jesse's prediction concerning his batting average?

A It was lower than he predicted.

B It was higher than he predicted.

C It was equal to his predictions.

D The batting average cannot be determined.

26 What is the least common multiple of 4, 5, and 6?

F 30

G 60

H 90

J 120

27 The pictograph below records Vista Sunglass sales for 2004.

VISTA SUNGLASS SALES FOR 2004

Color of Lens	Pairs Sold
Brown	
Yellow	
Green	
Gray	

KEY
= 10,000 pairs

Which color of lens had sales three times greater than one of the other color of lens?

A brown

B yellow

C green

D gray

28 Simplify the expression below.

$$(6^2 - 2^4) \cdot \sqrt{16}$$

F 16

G 64

H 80

J 108

Go On

29 Which of the following is a **metric unit** for measuring mass?

   A meter

   B liter

   C pound

   D gram

30 A shipping company uses baggage tags with 3-letter city codes. The first and third letters of each code are always consonants and the middle letter is always a vowel. The English language uses 21 consonants and 5 vowels. How many different combinations of tag codes are possible?

   F 105

   G 441

   H 1,638

   J 2,205

STOP

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