

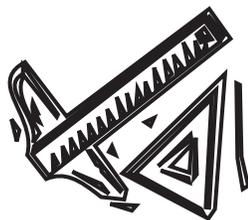


# ***New York State Testing Program***

---

## **Mathematics**

**Book 2**



**May 4–5, 2004**

*Name* \_\_\_\_\_

## TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

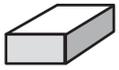
- Be sure to carefully read all the directions in the Test Book.
- Ask your teacher to explain any directions you do not understand.
- Plan your time. You may want to glance quickly through the entire section before you begin answering questions to plan your time.
- You may use your tools to help you solve any problem on the test.
- Read each question carefully and think about the answer before writing a 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.



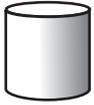
This picture means that you will use your ruler.



This picture means that you will use your protractor.

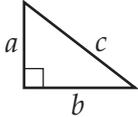
**FORMULAS****Mathematics Reference Sheet****Rectangular Solid**

Total Surface Area =  $2(lw) + 2(hw) + 2(lh)$

**Right Circular Cylinder**

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

Volume =  $\pi r^2 h$

**Pythagorean Theorem**

$c^2 = a^2 + b^2$

**Trigonometric**

$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$

$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$

$\tan A = \frac{\text{opposite}}{\text{adjacent}}$

**TRIGONOMETRIC TABLE**

Degrees	Sine	Cosine	Tangent
0	.0000	1.0000	.0000
5	.0872	.9962	.0875
10	.1736	.9848	.1763
15	.2588	.9659	.2679
20	.3420	.9397	.3640
25	.4226	.9063	.4663
30	.5000	.8660	.5774
35	.5736	.8192	.7002
40	.6428	.7660	.8391
45	.7071	.7071	1.0000
50	.7660	.6428	1.1918
55	.8192	.5736	1.4281
60	.8660	.5000	1.7321
65	.9063	.4226	2.1445
70	.9397	.3420	2.7475
75	.9659	.2588	3.7321
80	.9848	.1736	5.6713
85	.9962	.0872	11.4301
90	1.0000	.0000	.....

## Part 2

**28** Ingrid is working with the following number pattern:

2      4      16      256      ?

### Part A

According to the pattern, which number would come next?

**Answer** \_\_\_\_\_

### Part B

On the lines below, describe the pattern rule you used to find the correct answer to Part A.

---

---

---

---

### Part C

Does the number pattern below obey the same rule as the first pattern of numbers? Explain why or why not on the lines below.

3      9      27      81      243

---

---

---

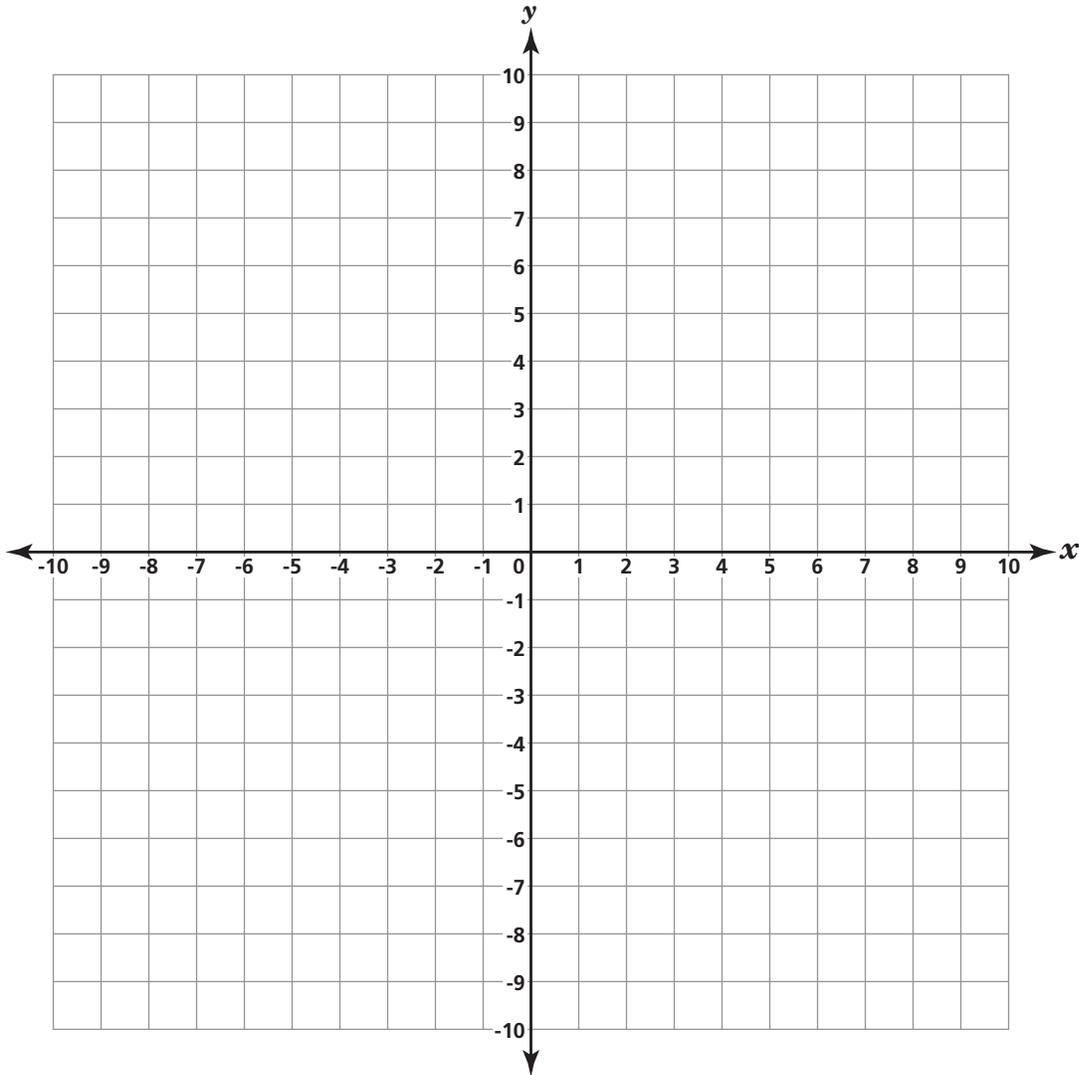
---

**Go On**

**29**

On the grid below, plot and label the following coordinates:

$(-1, 3)$ ,  $(7, 3)$ ,  $(7, -1)$  and  $(-1, -1)$ .



Connect the points with straight lines to create a specific type of polygon and name the polygon below.

**Name of polygon** \_\_\_\_\_

Now determine the perimeter of the polygon.

**Show your work.**

**Perimeter** \_\_\_\_\_ units

**30** Taylor is going to flip 2 fair coins one at a time. She flipped the first coin. What is the probability she got heads on the first flip?

**Probability** \_\_\_\_\_

Taylor is going to flip the second coin. Explain why the probability of getting heads on the second flip remains the same.

---

---

---

---

***Go On***

- 31** Justin has a measuring cup with a capacity of  $\frac{2}{3}$  cup. How many times will he fill his measuring cup with flour to measure  $3\frac{1}{3}$  cups?

**Show your work.**

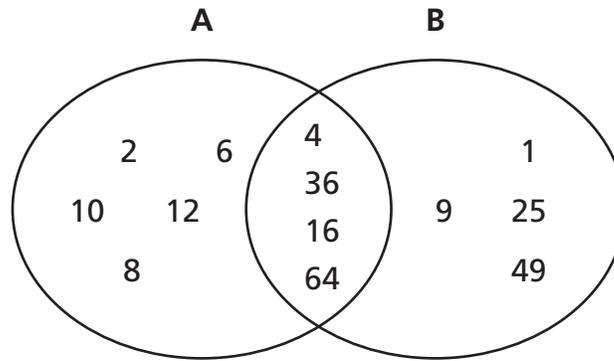
**Answer** \_\_\_\_\_ times

- 32** Juliet has collected 22 trading cards from a series that contains a total of 110 cards. Maxwell has collected the same percent of cards as Juliet, but he is collecting a different series. The series Maxwell is collecting has a total of 420. How many cards from his series does Maxwell have?

**Show your work.**

**Answer** \_\_\_\_\_ cards

The diagram below shows two sets of numbers, set A and set B.



### Part A

Set A is described as a set of even whole numbers. On the lines below, write a description for set B.

---



---



---



---

### Part B

What is the lowest 3-digit whole number that could be placed in the intersection of sets A and B?

**Answer** \_\_\_\_\_

# STOP

**Do NOT turn this page until you are told to do so.**

# Session 2

**34** Evaluate the two expressions below.

*Show your work.*

$$\frac{(7 \times 4 + 8)}{2}$$

$$\frac{7 \times (4 + 8)}{2}$$

**Answer** \_\_\_\_\_

**Answer** \_\_\_\_\_

On the lines below, explain why the results are not the same.

---

---

---

---

**Go On**

**35** While collecting branches from a specific kind of tree, Roland noticed a pattern where the number of leaves on the branches changed according to the length of the branch. He made the table below based on his findings.

**LEAVES ON BRANCHES**

Length of Branch (in feet)	Number of Leaves
0.5	15
1	27
1.5	39
2	51

**Part A**

On the lines below, describe the pattern that Roland found.

---

---

---

---

**Part B**

How many leaves would Roland expect to find on a 6-foot branch?

**Answer** \_\_\_\_\_ leaves

- 36** Ms. Lahti has an aquarium in her classroom. She has three types of fish: angelfish, goldfish, and guppies. These fish are distributed in a ratio of 4:6:10, respectively. Determine the percent of each type of fish in the aquarium.

**Show your work.**

**Angelfish** \_\_\_\_\_ %

**Goldfish** \_\_\_\_\_ %

**Guppies** \_\_\_\_\_ %

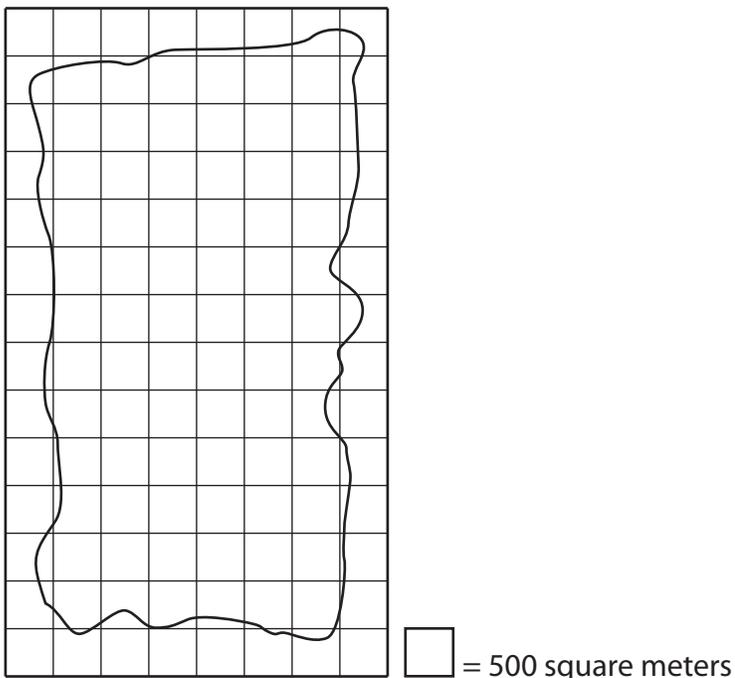
- 37** Annette's family is going to tile a 9-foot by 12-foot section of their home's entryway. Each individual tile has an area of 1.5 square feet. If each tile costs \$2.25, what would be the total cost of tiles for the entryway?

**Show your work.**

**Answer** \$ \_\_\_\_\_

**Go On**

Jimmy was trying to estimate the area of the lake where he goes fishing. The diagram below shows an aerial view of the lake.



Using the diagram above, ESTIMATE the area of the lake.

**Estimate** \_\_\_\_\_ square meters

On the lines below, explain the process you used to determine your estimate.

---

---

---

---

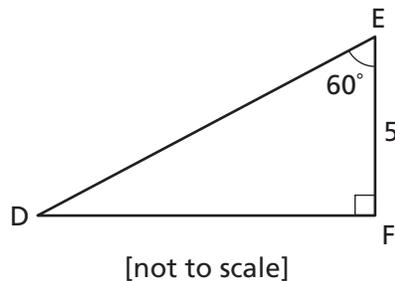
**39** John is a cartoonist. He rented a booth at the community fair last Friday for \$35, where he sold his drawings for \$5 each. After he paid the rental fee, he had \$225 as his earnings for the day.

Use the equation  $5x - 35 = 225$ , where  $x$  represents the number of drawings he sold, to find how many drawings he sold.

**Show your work.**

**Answer** \_\_\_\_\_ drawings

**40** The diagram below shows right triangle DEF.



If angle E measures  $60^\circ$ , what is the length of side DE?

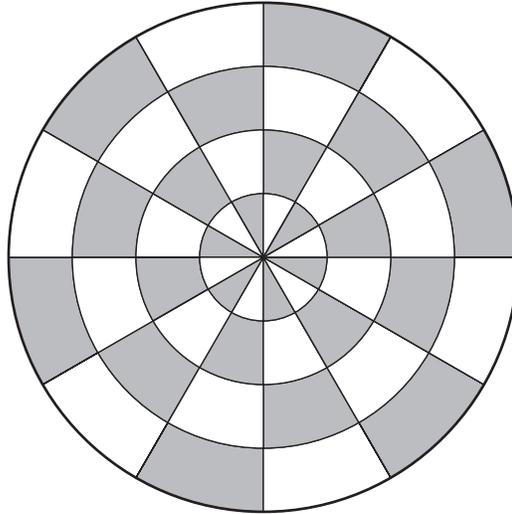
**Show your work.**

**Answer** \_\_\_\_\_

**Go On**

**41**

Felicia is making a design with shaded and unshaded sections, as shown below.



What fraction of the design is shaded?

**Answer** \_\_\_\_\_

On the lines below, explain how you determined your answer.

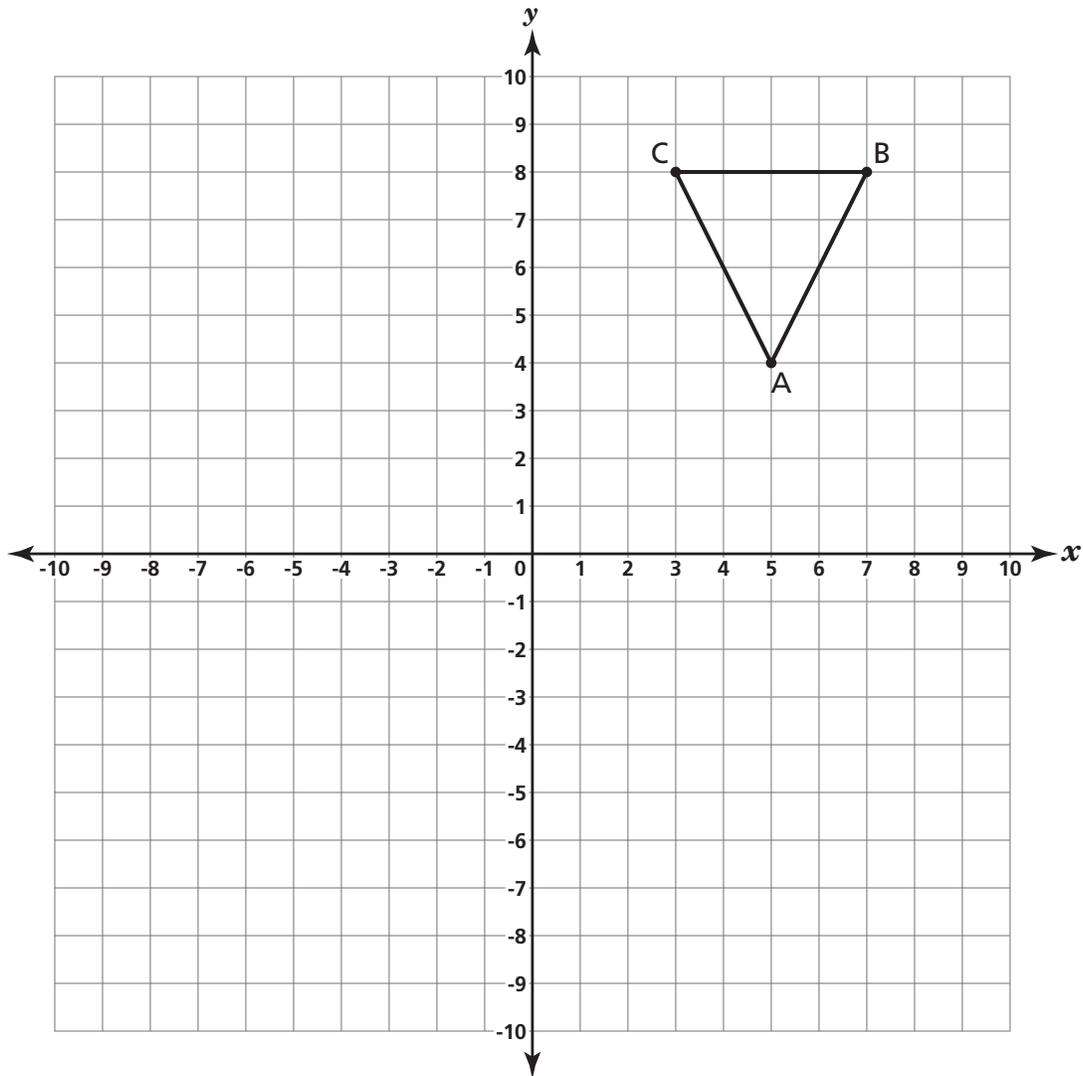
---

---

---

---

On the grid below, draw and label the reflection of  $\triangle ABC$  in the  $y$ -axis.



List the new coordinates for  $\triangle A'B'C'$  that you just drew.

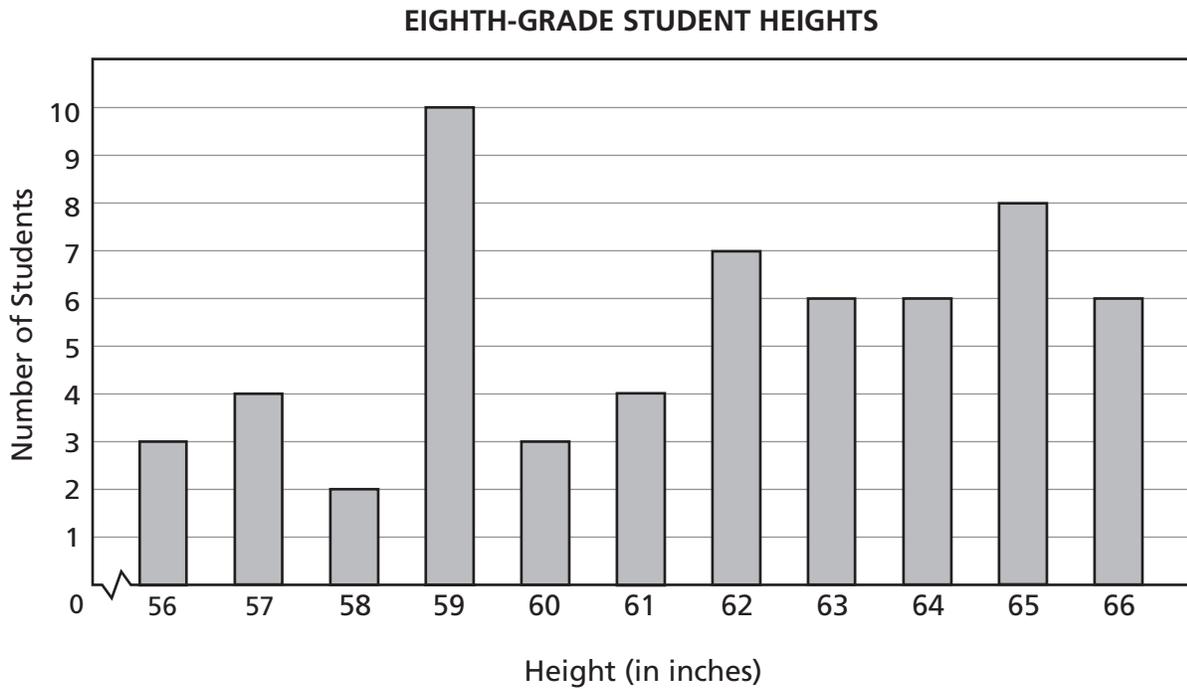
**Answers**  $A'$  (\_\_\_, \_\_\_)

$B'$  (\_\_\_, \_\_\_)

$C'$  (\_\_\_, \_\_\_)

**Go On**

**43** A survey was taken at a middle school. The heights of all eighth-grade students were recorded on the graph below.



**Part A**

What is the median height of the eighth-grade students?

**Show your work.**

**Median** \_\_\_\_\_ inches

**Part B**

What is the mode of the heights?

**Mode** \_\_\_\_\_ inches

On the lines below, explain why your answer represents the mode.

---

---

---

---

**44** Jesse works in a bakery. He can make 12 pies in 96 minutes. In the space below, write an equation that can be used to find how many pies ( $p$ ) Jesse would be able to make in ( $t$ ) minutes.

**Equation** \_\_\_\_\_

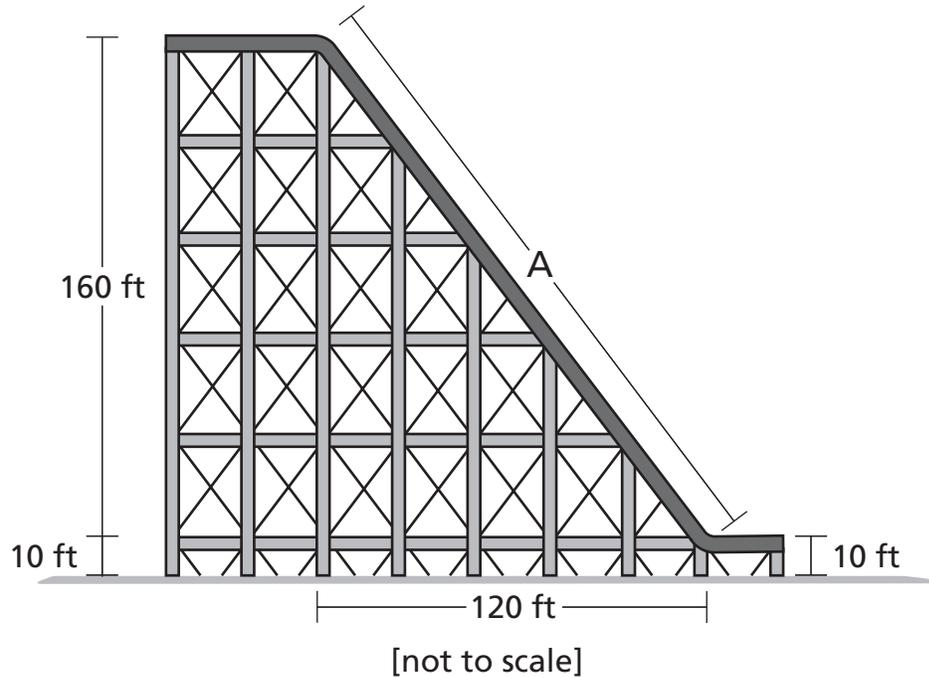
If Jesse makes pies for 8 hours, how many pies could he make?

**Show your work.**

**Answer** \_\_\_\_\_ pies

**Go On**

- 45** The roller coaster at an amusement park reaches a height of 170 feet before it drops down a slope to a point 10 feet above ground level, in a horizontal distance of 120 feet, as shown below.



What is the approximate length of the track, in feet, of the section of the roller coaster labeled A?

**Show your work.**

**Answer** \_\_\_\_\_ feet

**STOP**

---

---

Place Student Label Here



**Book 2**  
**Mathematics**  
**Grade 8**  
**May 4–5, 2004**

The McGraw-Hill Companies

---