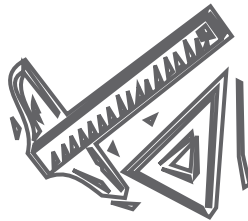




New York State Testing Program

Mathematics

Book 2



Due to differences in computer equipment, graphic depictions (e.g., maps, diagrams, graphs) may not print according to scale.

The State Education Department provides schools with manipulatives in the form of a sheet of punch-out tools for students to use when taking the Grade 4 or 8 Mathematics Tests. For Grade 4, the tools are a ruler, counters, and pattern blocks. For Grade 8, the tools are a ruler and a protractor. Manipulatives are not included with this sample test because differences in computer equipment may prevent printing according to scale.

Name _____
Sample Test



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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.



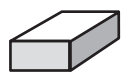
This picture means that you will use your ruler.



This picture means that you will use your protractor.

Mathematics Reference Sheet

FORMULAS



Rectangular Solid

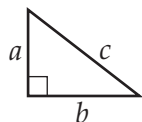
$$\text{Total Surface Area} = 2(lw) + 2(hw) + 2(lh)$$



Right Circular Cylinder

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

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



Pythagorean Theorem

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

Trigonometric

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

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

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

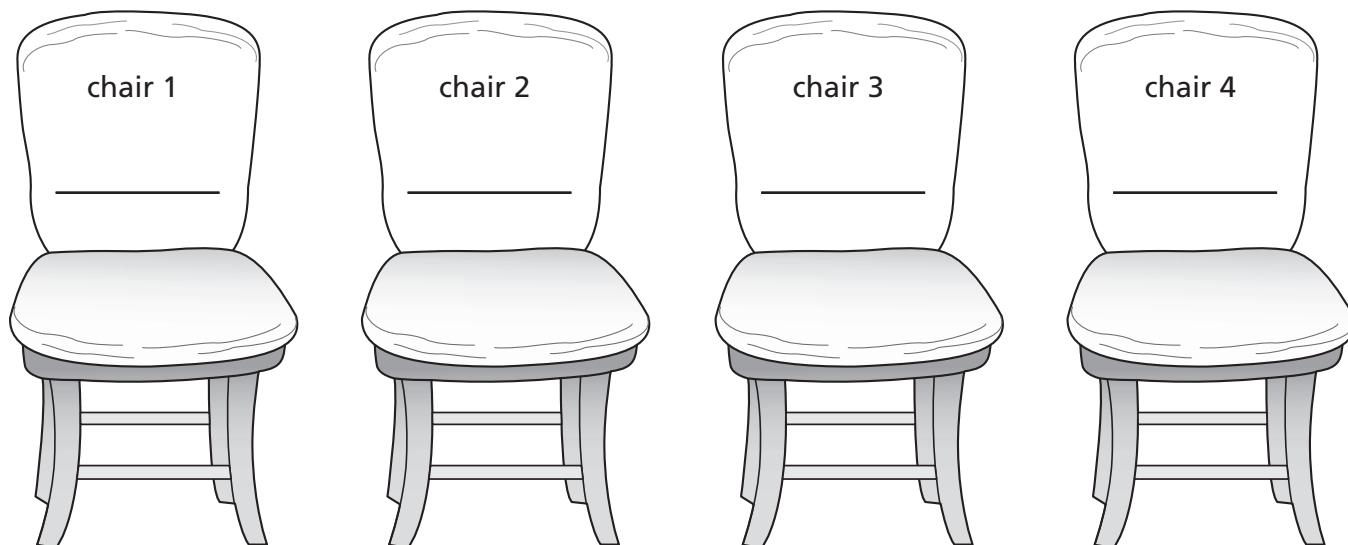
TRIGONOMETRIC TABLE

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

New York State Testing Program

Part 2

28 Tina, Carlos, April, and Malek will sit in these chairs according to the rules below.



- April will sit next to Malek.
- Carlos will *not* sit in chair 3.
- Tina will sit in chair 4.

Write a name on each chair above to show in what order Tina, Carlos, April, and Malek will be seated.

On the lines below, explain in words why Carlos *cannot* sit in chair 2.

Go On

29

The temperature on the moon can vary from 243°F to -261°F. By how many degrees can the temperature vary on the moon?

Show your work.

Answer _____°F

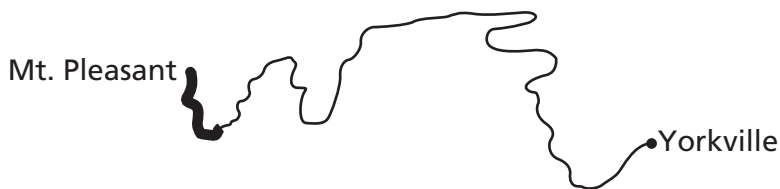
30

Dave wants to cut a 20-foot-long piece of wood into pieces that are either 5 feet, 4 feet, or 2 feet long. He must have at least one of each length and have no wood left over. What is the greatest number of pieces he can cut from this piece of wood?

Answer _____ pieces

On the lines below, explain the process you used to arrive at your answer.

Ben is hiking from Mt. Pleasant to Yorkville. He is following the trail shown on the map below.



The darker section of trail shows how far Ben has hiked, a distance of approximately 4 miles. ESTIMATE how many more miles Ben has to hike to get to Yorkville.

Estimate _____ miles

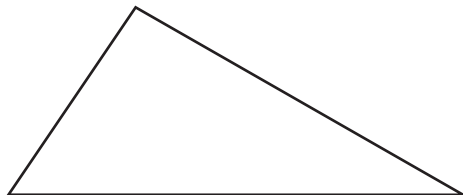
On the lines below, describe the process you used to determine your estimate.



Use the centimeter side of your ruler to help you solve this problem.

Part A

In the space below the triangle shown, draw a new triangle with sides that have lengths 1.5 times the lengths of the sides of the original triangle.



Part B

Are the two triangles similar or congruent to each other? Explain your answer in words on the lines below.

33

Mr. Adams will be serving 20 people at a barbeque. He plans to make two hamburgers for each person. Mr. Adams spent \$27.00 at the store on the meat, which sells for \$2.25 per pound. If Mr. Adams wants to make all the hamburgers the same size, what will be the size, in pounds, of each hamburger?

Show your work.

Answer _____ pounds

STOP

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

34 The statements below are examples of the commutative property of addition.

$$134(x + 17) = 134(17 + x)$$

$$8 + y + 0.25 = y + 8 + 0.25$$

Part A

On the lines below, explain in words why these statements are examples of this property.

Part B

Write a different mathematical statement that demonstrates this same property.

Answer _____

Mary selected some students in her school at random and asked how they got to school each morning. Her results are shown in the table below.

MARY'S RESULTS

Way to School	Number of Students
Ride in car	23
Ride the bus	51
Walk	18

Part A

What percent of the students in the table above ride in a car to school each morning?

Show your work.

Answer _____ %

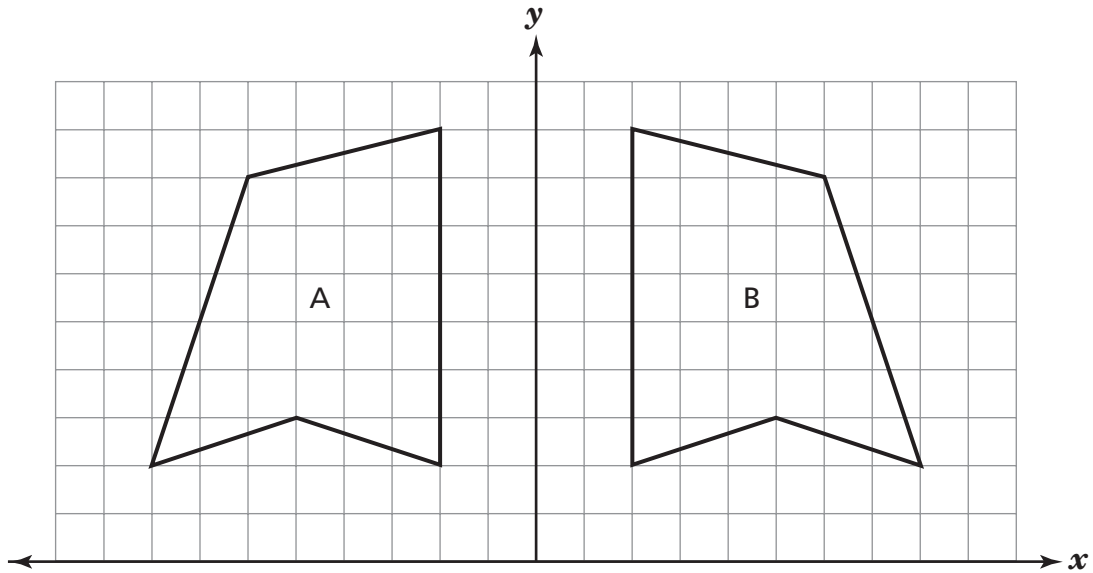
Part B

There are 440 students in Mary's school. The proportion of students who ride in a car to Mary's school is equal to the proportion in the table shown above. How many students in Mary's school ride in a car to school?

Show your work.

Answer _____ students

Figure A was transformed on a grid and renamed figure B.



On the lines below, name and describe the transformation that changed figure A to figure B.

37 Antonio is building a bookshelf. He has a piece of wood that measures 90 centimeters in length. The directions require that this piece of wood be cut into two pieces, one piece 20 centimeters longer than the other. He uses the equation below to determine where to make the cut.

$$x + (x + 20) = 90$$

The shorter piece of wood must then be cut in half. Use the equation above to help you determine the length of the shortest piece of wood.

Show your work.

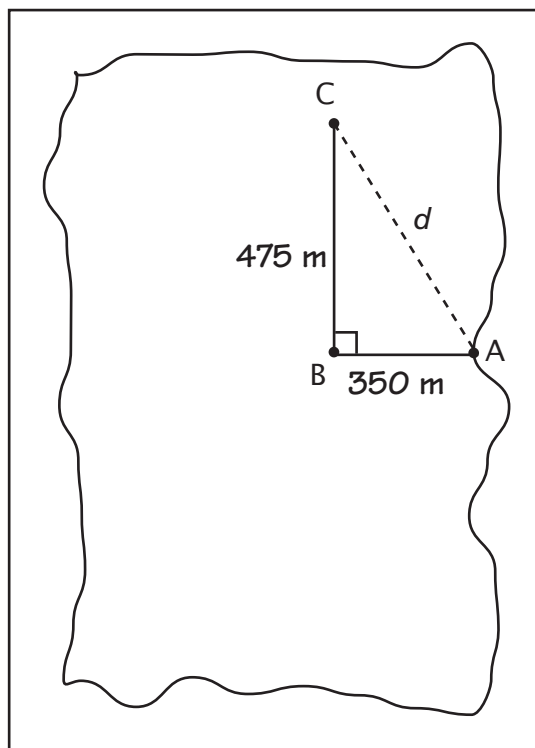
Answer _____ centimeters

38 Lauren and Victoria are playing a number-guessing game. Lauren thinks of a whole number from 1 to 20, then Victoria tries to guess the number in as few tries as possible. If she guesses wrong, Lauren tells her if the number is higher or lower than her guess.

On the lines below, explain a process Victoria could use to determine Lauren's number that minimizes the number of guesses.

39

Jimmy and his uncle left the shore in their boat from point A and continued on this course for 350 meters until they reached point B. After fishing there for awhile, they made a 90-degree turn and continued for 475 meters to point C. The diagram below shows the course they took and the locations of the two different fishing spots on the lake.

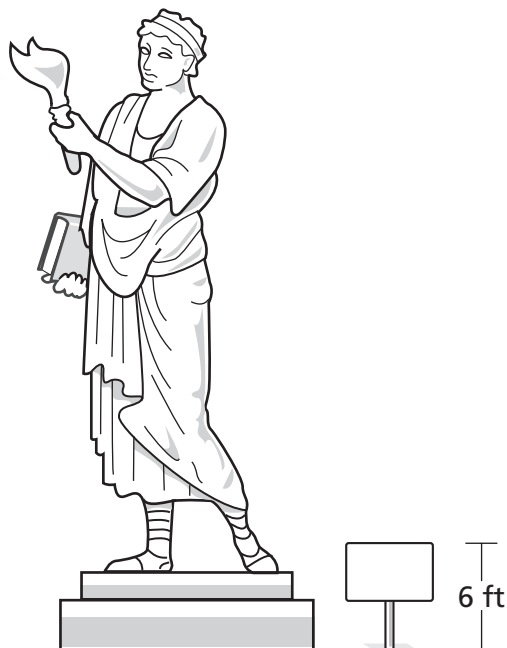


What is the approximate distance, d , they will travel from point C to get back to point A?

Show your work.

Answer _____ meters

Look at the drawing of the statue below.



Andre knows that the signpost next to the statue is 6 feet tall. He wants to measure the height of the statue, but cannot reach the top to do so. This scale drawing of the statue is the only thing he has to help him.

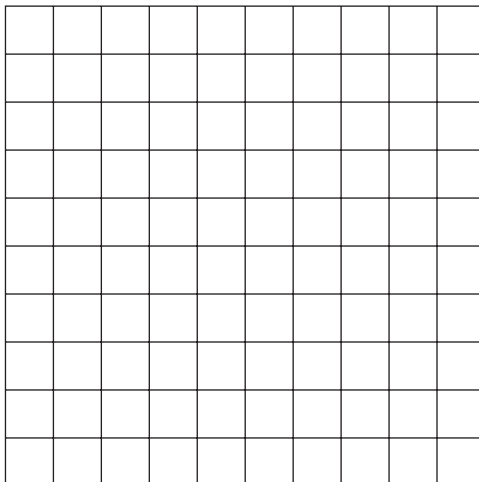
On the lines below, describe a method Andre can use to measure the height of the statue.

Using the method you described above, find the height of the statue.

Height _____ feet

41

Martin has an office with a floor shaped like a rectangle, 12 feet by 20 feet. He has a desk that is positioned against one of the 12-foot walls. His desk measures 8 feet by 6 feet. On the grid below, draw a scale diagram of Martin’s office floor plan. Make sure to include and label his desk in the drawing in a correct place. Be sure to provide the scale that you used to draw your diagram.



42

Mr. Bell’s class is playing a math game. Mr. Bell randomly names an integer from the set of integers -15 to 15 .

Part A

What is the probability that Mr. Bell names a positive integer?

Probability _____

Part B

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

Go On

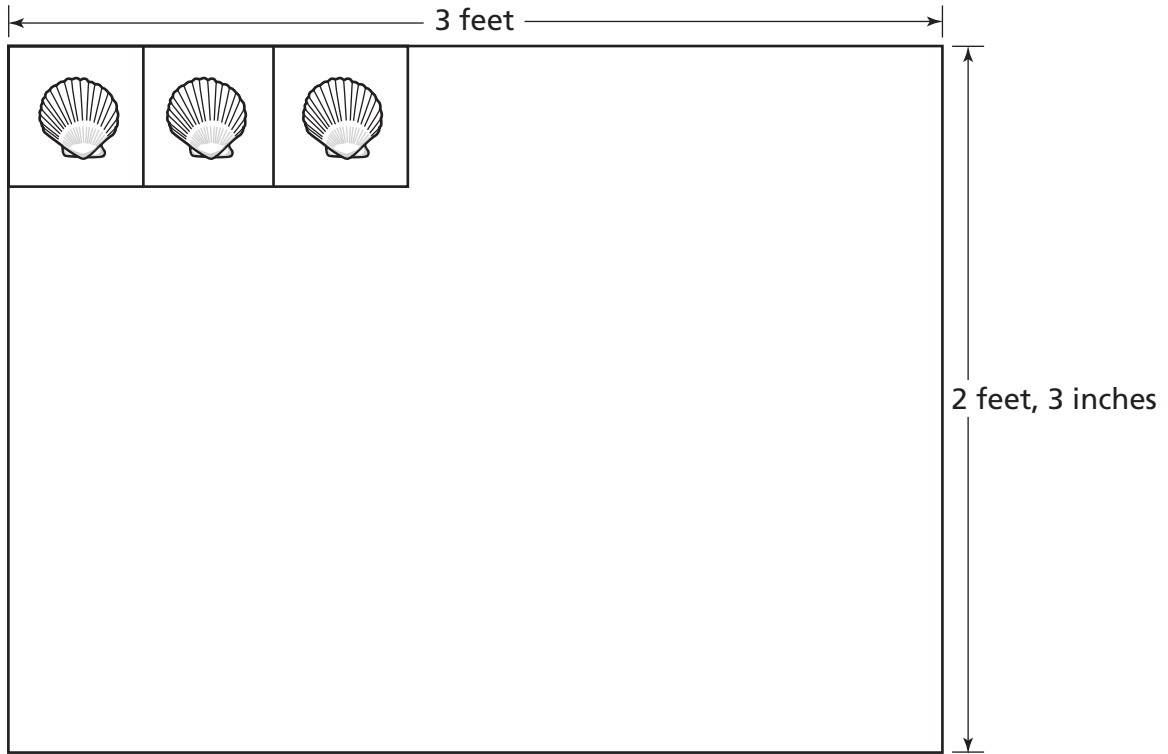
Angle A and angle B are complementary. In addition, angle A is supplementary to angle C. What are the measures of angle A and angle C if angle B measures 37° ?

Angle A _____ degrees

Angle C _____ degrees

Explain in words how you determined your answers on the lines below.

The students in Ms. Lewis's class have seashell decals to put around the border of their ocean project bulletin board, as shown below.



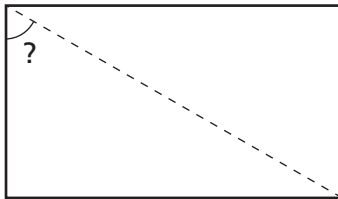
[not to scale]

Each paper decal is 4.5 inches long and 4.5 inches wide. How many decals will it take to complete the border of the bulletin board?

Show your work.

Answer _____ decals

Brady drew a rectangle and then drew a diagonal in that rectangle as shown below.



When Brady measured the width of the rectangle and the length of the diagonal, he found that the diagonal is twice as long as the width.

Part A

Express the width of the rectangle and the measure of the diagonal in terms of x .

Width _____

Diagonal _____

Part B

On the lines below, explain how Brady can find the measure of the angle formed by the width of the rectangle and the diagonal.

Part C

If the width of the rectangle is 4 inches, find the measure of the angle formed by the width of the rectangle and the diagonal.

Answer _____ degrees

STOP

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Book 2
Mathematics
Grade 8