

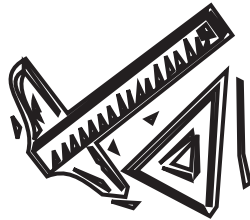


# ***New York State Testing Program***

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## **Mathematics**

**Book 2**



**May 10 and 11, 2005**

*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.
- 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**

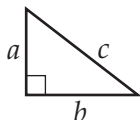
$$\text{Total Surface Area} = 2(lw) + 2(hw) + 2(lh)$$



**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	.....



## Part 2

28

Alicia wears a blouse, a skirt, and a belt each day to school. She has 3 blouses, 3 skirts, and 2 belts. How many different outfits can Alicia create?

*Show your work.*

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

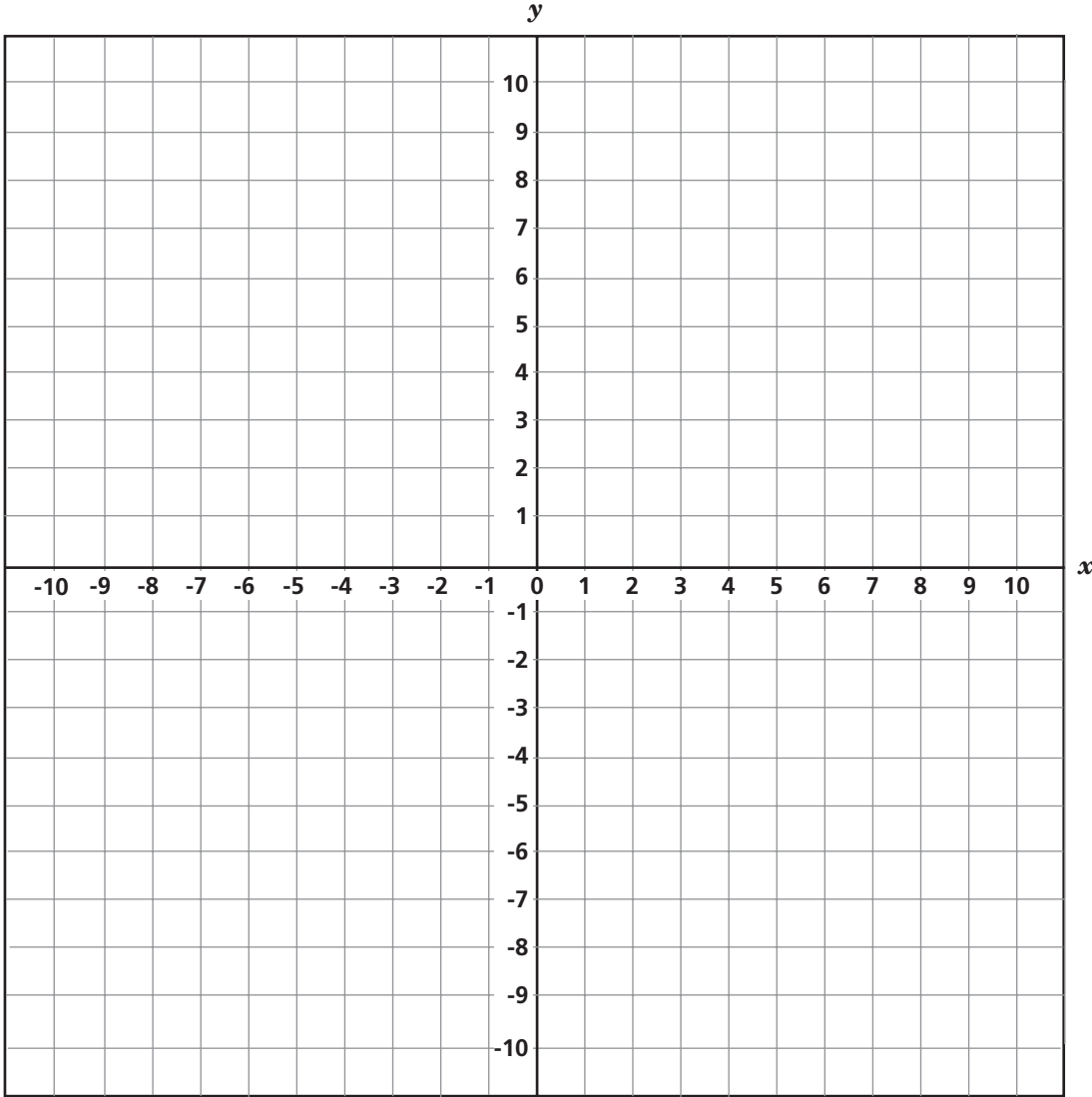
**Go On**

**29**

On the grid below, sketch and label the geometric shapes A and B using the coordinates of the vertices given for each.

Shape A: (-5, 2), (-2, 2), (-5, 5), (-2, 5)

Shape B: (-1, -2), (-6, -2), (-7, -5), (-2, -5)



What is the area of each shape in square units?

**Area of Shape A** \_\_\_\_\_ square units

**Area of Shape B** \_\_\_\_\_ square units

**30**

Tyler wants a pair of shoes that sells for \$60.00. He uses two coupons when he buys these shoes. One coupon is for a 30% discount and the other coupon is for \$10.00 off. The cashier takes the 30% discount first, and then subtracts \$10.00.



**Coupon 1**



**Coupon 2**

**Part A**

How much does Tyler pay for the pair of shoes?

**Show your work.**

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

**Part B**

Would the price be different if the cashier had subtracted the \$10.00 and then taken the 30% discount? On the lines below, show your work or explain in words.

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**Go On**

**31**

When Jimmy and Shane went fishing, Shane caught 2 more than three times the number of fish that Jimmy caught. Write an algebraic expression that represents how many fish Shane caught.

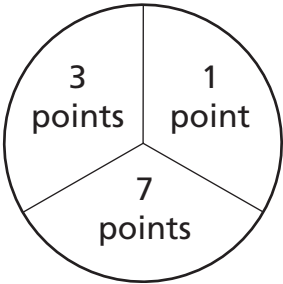
**Expression** \_\_\_\_\_

Use the expression you wrote above to determine how many fish Shane caught if Jimmy caught 2 fish.

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

**32**

Harry received 82 points after tossing 14 darts at the target shown below. At least one dart landed in each section. All 14 darts landed in sections on the target.



What is the *least* number of times Harry could have hit the 1-point area?

**Answer** \_\_\_\_\_ time(s)

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

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**Go On**

**33**

In the space below, use prime factorization to find the least common multiple of 120 and 252.

*Show your work.*

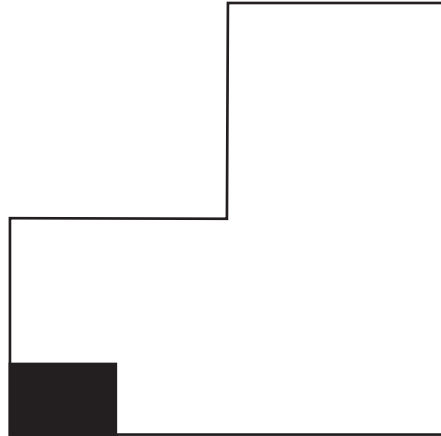
*Least common multiple* \_\_\_\_\_

**STOP**

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



34 The figure below shows a diagram of Veronica's garden.



The shaded area of the garden represents a patch of carrots. Veronica estimates that she will get about 40 carrots from the patch shown above. Veronica is going to plant the rest of her garden with carrots.

**Part A**

ESTIMATE the total number of carrots she can expect to grow.

**Estimate** \_\_\_\_\_ carrots

**Part B**

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

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**Go On**

At the supermarket, Shari and Ethel are setting up displays of cans using different patterns.

**Part A**

Complete the tables below to show the number of cans Shari's display and Ethel's display will have in each row.

**SHARI'S DISPLAY**

Row	Cans
1	1
2	4
3	9
4	16
5	
6	
7	

**ETHEL'S DISPLAY**

Row	Cans
1	1
2	3
3	5
4	7
5	
6	
7	

**Part B**

On the lines below, use words to describe the pattern of each display.

**Shari's pattern** \_\_\_\_\_

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**Ethel's pattern** \_\_\_\_\_

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**Part A**

Using the associative property, write an expression equivalent to  $(16 + 3x) + x$ .

**Expression** \_\_\_\_\_

**Part B**

What is the value of  $(16 + 3x) + x$ , when  $x = -8$ ?

**Show your work.**

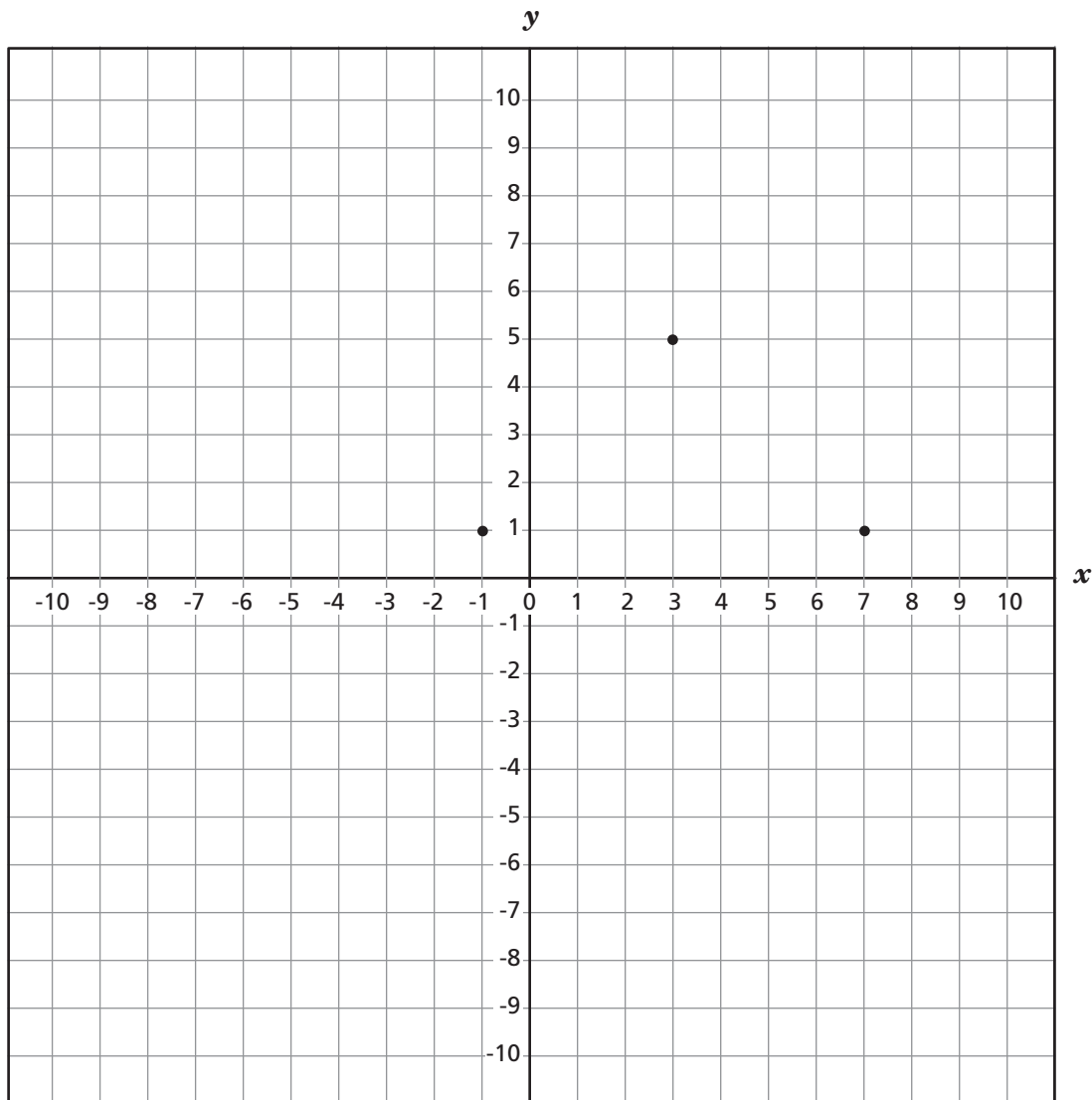
**Answer** \_\_\_\_\_

**Go On**

**37** On the grid below, three of the four vertices of a square have been plotted.

**Part A**

Plot the fourth vertex on the grid and connect the vertices to complete the square.



**Part B**

What are the coordinates of the fourth vertex of the square?

**Answer** (\_\_\_\_, \_\_\_\_)

**Part C**

What is the length, in units, of the diagonal of the square?

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

**38**

Mark made a skateboard ramp shaped like a triangle. It is 4.5 feet long and 3 feet high. He wants to make another ramp that is shaped like a triangle similar to the first ramp. The new ramp will be 4 feet high.

Write a proportion that Mark can use to find the length,  $x$ , of the new ramp.

**Proportion** \_\_\_\_\_

What is the length, in feet, of the new ramp?

**Show your work.**

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

**Go On**

**Part A**

In Randi's school, 5 out of every 7 students ride the bus to school. What percent of students ride the bus? Round your answer to the nearest tenth.

**Show your work.**

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

**Part B**

If there are 350 students in Randi's school, approximately how many students ride the bus?

**Show your work.**

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

Darnell wants to buy ready-mix concrete for his patio. The concrete will fill a space that is 54 feet by 16 feet by 6 inches.

**Part A**

How many cubic yards of ready-mix concrete will Darnell need?

1 cubic yard = 27 cubic feet
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**Show your work.**

**Answer** \_\_\_\_\_ cubic yards

**Part B**

Ready-mix concrete costs \$75.00 per cubic yard. How much will the ready-mix concrete cost for Darnell's patio?

**Show your work.**

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

**Go On**

**41** Write the next three numbers in the sequence below.

2, -8, 32, -128, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

On the lines below, describe the pattern you used to complete the sequence.

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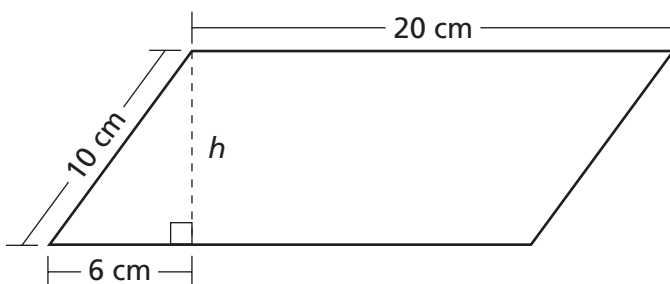
**42** Becky is buying a new car at a cost of \$23,685. She will pay for it over a 60-month period. How much less will Becky pay per month if she makes a down payment of \$3,000 first?

**Show your work.**

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

**43**

The parallelogram shown below has sides with lengths of 10 centimeters and 20 centimeters.



**Part A**

Calculate the height, in centimeters, of the parallelogram.

**Show your work.**

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

**Part B**

Calculate the area, in square centimeters, of the parallelogram.

**Show your work.**

**Answer** \_\_\_\_\_ cm<sup>2</sup>

**Go On**

Amid's bill at a restaurant was \$39.24. He plans to leave a 15% tip for the waiter. On the lines below, explain how Amid can ESTIMATE the amount for the tip.

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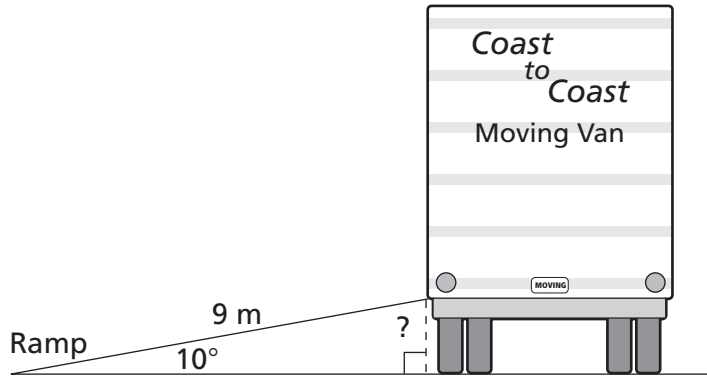
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The diagram below shows a truck with a ramp that is used to load and unload furniture from the truck. The ramp measures 9 meters in length, and when the ramp is extended from the truck to the ground, it meets the ground at a  $10^\circ$  angle.



(NOTE: Not to scale)

How many meters off the ground is the end of the ramp where it attaches to the truck?

**Show your work.**

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

**STOP**

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**Book 2**  
**Mathematics**  
**Grade 8**  
**May 10 and 11, 2005**

The McGraw-Hill Companies

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