# 6th Grade Mathematics

This Test Review Booklet was designed for Grade 6 Mathematics Assessment Test. It provides examples of the format and types of questions that may be on the actual test as administered by the State Education Department. We have separated our review tests into two sections:

Part 1 - Multiple Choice Section (55 questions)
Part 2 - Short / Extended Response Section (10 questions)

The actual test has three books, administered over three days.

Book 1: 28 multiple choice questions

Book 2: 27 multiple choice questions

Book 3: 10 short or extended response questions

Each student should have the following items made available to them during the test:

-Ruler
-Protractor
-Four-function Calculator with square root key, or Scientific Calculator

For a complete description of restrictions see the NY State Education website: www.nysed.gov


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# Grade 6 Mathematics Reference Sheet

## *CONVERSIONS*

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5,280 feet
1 mile = 1,760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1,000 cubic centimeters

## *FORMULAS*

| | |
|---|---|
| **Triangle** | $A = \frac{1}{2}bh$ |
| **Right Rectangular Prism** | $V = Bh$ or $V = lwh$ |

## Question Distribution

The questions in the practice exams have the same approximate distribution as that described by the NYSED Elementary, Middle, Secondary, and Continuing Education guidelines. They are:

| | |
|---|---|
| Number Systems | 15 – 25% |
| Expressions and Equations | 35 – 45% |
| Geometry | 10 – 20% |
| Ratios and Proportional Relationships | 20 – 30% |
| Probability and Statistics* | 20 – 22% |

*Included in this book, Post Test 6th grade curriculum and standards.

# 6th Grade Mathematics

## TABLE OF CONTENTS

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# TEST 1

## PART 1

**1** Which has the same value as $\frac{4}{9} \div \frac{1}{8}$?

**A** $\frac{4}{9} \div 8$

**B** $\frac{9}{4} \times 8$

**C** $\frac{4}{9} \times 8$

**D** $\frac{9}{4} \times \frac{1}{8}$ 1 _____

**2** Erin runs laps each day on a track that is $\frac{4}{8}$ miles long. This week, she ran $4\frac{4}{8}$ miles on the track. How many laps did she run?

**A** 9 laps

**B** 4 laps

**C** 8 laps

**D** $8\frac{1}{4}$ laps 2 _____

**3** A rectangular parking lot is $\frac{3}{4}$ mile long. If its area is $\frac{3}{8}$ square mile, what is the width of the lot?

**A** $\frac{1}{4}$ mile

**B** 1 mile

**C** $\frac{1}{8}$ mile

**D** $\frac{1}{2}$ mile 3 _____

**4** What is the greatest common factor of 60 and 12?

**A** 60

**B** 12

**C** 6

**D** 2 4 _____

**5** Multiply 7.5 x 0.26

**A** 1.95

**B** 1.90

**C** 2.67

**D** 7.31 5 _____

**6** What is the distance between –57 and zero on a number line?

**A** –57

**B** 57

**C** 114

**D** 0 6 _____

**7** What ordered pair is a reflection of (–3, –4) over the *y*-axis?

**A** (–3, 4)

**B** (3, 4)

**C** (3, –4)

**D** (–4, –3) 7 _____

**8** Three players are competing in a contest. Maggie has 7 points, Chris has 3 points, and Jenna has –4 points. What are the players' names in order from lowest to highest score?

**A** Maggie, Chris, Jenna

**B** Jenna, Maggie, Chris

**C** Chris, Maggie, Jenna

**D** Jenna, Chris, Maggie 8 _____

**9** What is the value of $4^3 - 3^2$ ?

**A** 3

**B** 6

**C** 58

**D** 55 9 _____

**10** What is the value of $2(8 - 5)^2$ ?

**A** 18

**B** 6

**C** 11

**D** 12 10 _____

**11** What is an expression for "60 less than a number *y*" ?

**A** $y - 60$

**B** $-60 + y$

**C** $-60y$

**D** $y + 60$ 11_____

**12** What is an expression for the product of 8 and *n*?

**A** $8 + n$

**B** $8n$

**C** $8 - n$

**D** $8 \div n$ 12_____

**13** What is the quotient of $n$ divided by 11 when $n = 55$?

**A** 11

**B** 5

**C** 5.5

**D** 22

13 _____

**14** Which one is not equivalent to $3(2n + 5n)$?

**A** $6n + 15n$

**B** $3(7n)$

**C** 21 x $n$

**D** $6n + 5n$

14 _____

**15** Simplify the expression $3(7n + 8p)$

**A** $21n + 24p$

**B** $21n + 8p$

**C** $15np$

**D** $7n + 24p$

15_____

**16** The formula for the perimeter of a regular hexagon with sides of length $x$ is $P = 6d$. What is the perimeter if a side is 12 units long?

**A** 2 units

**B** 6 units

**C** 36 units

**D** 72 units

16 _____

**17** One factor in the equation $6(x + 3)$ is $x + 3$. What is the second factor?

**A** 3

**B** 18

**C** 6

**D** 12

17 _____

**18** Which number is a solution to $40 = 9n + 4$?

**A** 36

**B** 3

**C** 4

**D** 40

18 _____

**19** Which is the expression for the number of peaches if there are 6 buckets with $n$ peaches in each, and 9 additional peaches?

**A** 54

**B** $6n + 9$

**C** $54n$

**D** $54 + 9$

19 _____

**20** Which expression describes the values in the second column?

| s | ? |
|---|---|
| 9 | 18 |
| 7 | 16 |

**A** $s \times 2$

**B** $s \times 9$

**C** $s + 9$

**D** $s + 2$

20 _____

**21** The value of a variable $n$ is more than 45. Which inequality describes $n$?

**A** $n < 45$

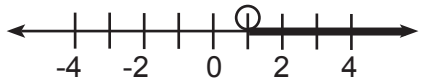
**B** $n > 45$

**C** $n \leq 45$

**D** $n \geq 45$

21 _____

**22** The graph shows possible values of a variable, $b$. Which inequality is shown by the graph?




**A** $b > 1$

**B** $b \geq 1$

**C** $b < 1$

**D** $b > 2$

22_____

**23** The length of a rectangle is double the width, $w$. The length is 12 inches. Which equation can be used to find the width?

**A** $2w = 12$

**B** $2 + w = 12$

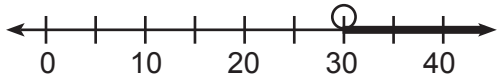
**C** $w - 12 = 2$

**D** $w \div 2 = 12$

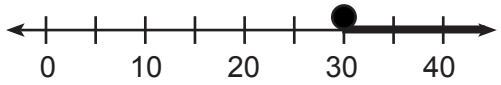
23 _____

**24** A cylinder can hold up to 30 milliliters. The cylinder currently holds $m$ milliliters of liquid. Which number line shows the possible values of $m$?

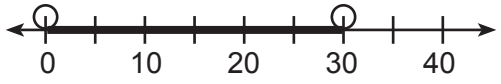
**A**



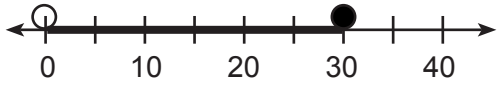

**B**




**C**




**D**




24_____

**25** Dennis is $y$ years old and has a brother who is 4 years older. His brother is 23 years old. Which equation can be solved to find $y$?

**A** $y + 4 = 23$

**B** $y - 4 = 23$

**C** $4y = 23$

**D** $y \div 4 = 23$ 25 _____

**26** One foot is equal to 12 inches. If $y = a$ length in feet and $x = a$ length in inches, which equation does not show a correct relationship between the measurements?

**A** $y = \frac{1}{12}x$

**B** $x = 12y$

**C** $y = 12x$

**D** $12y = x$ 26 _____

**27** Shaina and Tyler are making bracelets in a jewelry class. Shaina has $s$ bracelets and Tyler has made $t$ bracelets. In all, they have made 17 bracelets. Complete the table to show pairs of values for $s$ and $t$. (top to bottom)

| s | t |
|---|---|
| 7 | 10 |
| 9 | |
| | 13 |
| 11 | |

**A** 17, 19, 23

**B** 8, 4, 6

**C** 12, 10, 14

**D** 10, 10, 14 27 _____

**28** Refer to the table in question 27. Which equation represents the relationship between $s$ and $t$?

**A** $t = 3s$

**B** $s = 2t$

**C** $t = 17 - s$

**D** $t = 17 + s$ 28 _____

**29** At Jaclyn's Grocery Store, apples are sold by the pound. The table shows the weight and price for three purchases of apples.

| Pounds | Price |
|---|---|
| 4 | $12.00 |
| 1.5 | $4.50 |
| 2.25 | $6.75 |

What is the cost of 6 pounds of apples from Jaclyn's Grocery Store?

**A** $ 3

**B** $ 6

**C** $ 12

**D** $ 18 29 _____

**36** The ratio of 6 to 4 is equivalent to which of these ratios?

**A** 2 to 4

**B** 3 to 4

**C** 18 to 8

**D** 18 to 12

36 _____

**37** What value of $n$ makes the ratios equal?

$$\frac{n}{9} = \frac{12}{3}$$

**A** 4

**B** 36

**C** 27

**D** 6

37 _____

**38** There were 16 students at a chess club. 10 of the students were boys and the rest were girls. What was the ratio of boys to girls at the chess club?

**A** 10 : 6

**B** 10 : 16

**C** 5 : 3

**D** 3 : 5

38 _____

**39** Aylin decorated her 2 windows of her store in 18 minutes. At that rate, how many minutes would it take her to decorate 6 windows?

**A** 24

**B** 27

**C** 54

**D** 108

39 _____

**40** Mark bought 2.8 pounds of deli meats for $10.50. What was the unit price of the deli meats?

**A** $ 2.25

**B** $ 3.75

**C** $ 4.75

**D** $ 4.80

40 _____

**41** Complete the table of equivalent ratios.

| | | | |
|---|---|---|---|
| 4 | 8 | 12 | |
| 5 | 10 | 15 | 20 |

**A** 14

**B** 15

**C** 16

**D** 20

41 _____

**42** What is $\frac{26}{100}$ as a percent?

**A** 20%

**B** 24%

**C** 25%

**D** 26%

42 _____

**43** 126 is 60% of what number?

**A** 160

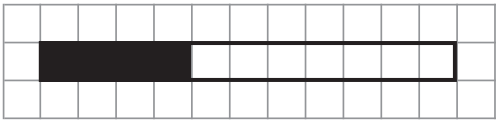
**B** 210

**C** 216

**D** 260

43 _____

**44** The bar below has a ratio of 4 to 7. What fraction of the bar is shaded?



**A** $\frac{4}{11}$

**B** $\frac{4}{12}$

**C** $\frac{4}{7}$

**D** $\frac{4}{4}$

44 _____

**45** Monday's projects were 60% of Sunday's projects, 20. What was Monday's projects?

**A** 3

**B** 12

**C** 120

**D** 1200

45 _____

**46** Matthew and Scott were given a jigsaw puzzle to put together. Each of them worked on the puzzle and they recorded their time. The results are shown below. What was the median of the times?

| | | |
|---|---|---|
| 10 min | 20 min | 11 min |
| 15 min | 16 min | 10 min |

**A** 11

**B** 13

**C** 15

**D** 16

46 _____

**47** What is the mean of the times in Question 46, rounded to the nearest whole number?

**A** 12

**B** 13

**C** 14

**D** 15

47 _____

**48** Which of these is a statistical question?

**A** Which meals, lunch or dinner, are favored with retired people?

**B** How many friends are coming over for dinner tonight?

**C** What was the temperature in your city yesterday?

**D** What is your house number? 48 _____

**49** What is the mean of 40, 53, 26, 67, and 29?

**A** 26

**B** 30

**C** 43

**D** 53 49 _____

**50** What are the mean and median called?

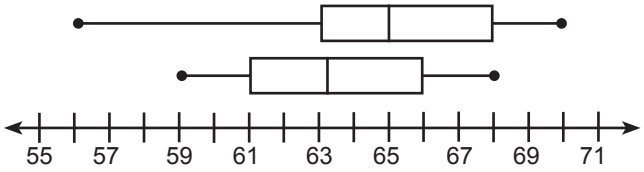
**A** Interquartile range

**B** Maximum measures

**C** Measures of center

**D** Measures of variation 50 _____

**51** At an after school activity, the heights of 50 boys and 50 girls were measured. The two box plots below show the results.




Which statement is true?

**A** The boys have a greater range in height

**B** The girls have a greater range in height

**C** The range of the heights are the same

**D** The girls are taller than the boys

51 _____

**52** From the box plots in Question 51, what was the median height of the girls to the nearest whole inch?

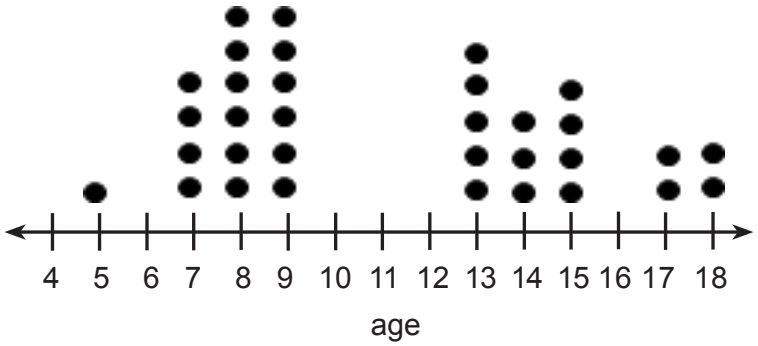
**A** 56

**B** 59

**C** 60

**D** 63 52 _____

Use the Dotted Plot below to answer questions 53-55.




**53** The dot plot above shows ages of 33 students visiting a park. Which of the following is a true statement?

**A** There are no gaps

**B** There is a cluster from 7 to 9

**C** There is symmetry from 6 to 7

**D** There are no clusters

53 _____

**54** What is the range of the ages of students shown by the dot plot in Question 53?

**A** 9

**B** 13

**C** 15

**D** 18

54 _____

**55** What is the median of the ages of students shown on the dot plot in Question 53?

**A** 9

**B** 12

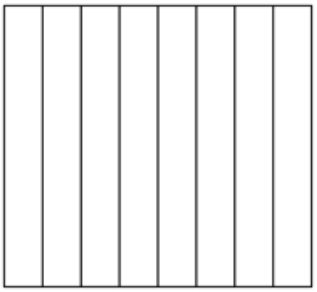
**C** 13

**D** 14

55 _____

# PART 2

**56** The 1-inch by 1-inch square is divided into eights. Use the model to show $\frac{7}{8}$ divided by $\frac{1}{16}$. What is the quotient?

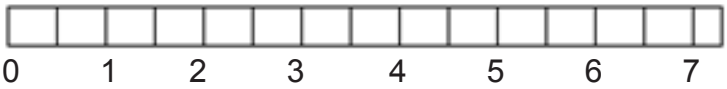


*Show your work:*

*Answer:*_____

**57** Kelly is cutting a blue ribbon that is $7\frac{1}{2}$ inches long into shorter pieces. If she makes each blue piece $1\frac{1}{2}$ inches long, how many pieces can she make?

*Show your work:*




*Answer:*_____

**58** James usually rides his bike at a speed of 8 miles per hour. Let *x* represent the hours and *y* represent miles. Write an equation that shows the relationship between *x* and *y*.

*Show your work:*

*Answer:*_____

**59** The formula for the volume of a cube with an edge of length s is $V = s^3$. What is the volume of a cube that has an edge 6 units long?

*Show your work:*

*Answer:*_____

**63** Fill in the missing numbers from the table below.

| cups | fl. oz. |
|---|---|
| 2 | 16 |
| | 32 |
| 5 | 40 |
| 7 | |
| 8 | |

**64** The following 15 ages are ages of children visiting a museum.

5, 5, 5, 6, 6, 7, 7, 8, 9, 10, 10, 11, 12, 12, 12

Write the following data summary :

Minimum____ First Quarter____ Median____ Maximum____ Third Quarter____ Interquartile Range____

**65** Draw a box and whiskers plot to show the data represented in Question 64.