

VIRGINIA STANDARDS OF LEARNING

Spring 2006 Released Test

# GRADE 6 MATHEMATICS

---

CORE 1

**Property of the Virginia Department of Education**

©2006 by the Commonwealth of Virginia, Department of Education, P.O. Box 2120, Richmond, Virginia 23218-2120. All rights reserved. Except as permitted by law, this material may not be reproduced or used in any form or by any means, electronic or mechanical, including photocopying or recording, or by any information storage or retrieval system, without written permission from the copyright owner. Commonwealth of Virginia public school educators may reproduce any portion of these released tests for noncommercial educational purposes without requesting permission. All others should direct their written requests to the Virginia Department of Education, Division of Assessment and Reporting, at the above address or by e-mail to [darfax@doe.virginia.gov](mailto:darfax@doe.virginia.gov).

**DIRECTIONS**

Read and solve each question. Then mark the space on your answer document for the best answer.

**SAMPLE**

One hundred sixth-grade students were asked to name one favorite color. The table shows the results.

**Favorite Colors**

Color	Number of Students
Blue	28
Red	21
Purple	11
Green	11
Black	29

What percent of the students named blue?

- A 28%
- B 29%
- C 50%
- D 57%

1 Jamal walked  $\frac{3}{4}$  mile yesterday morning and  $\frac{1}{8}$  mile yesterday afternoon. What was the total distance walked by Jamal?

- A 1 mile
- B  $\frac{7}{8}$  mile
- C  $\frac{1}{2}$  mile
- D  $\frac{1}{3}$  mile

2 Mrs. Dinato remembered the area of the top of her rectangular table was between 1,500 and 2,000 square inches. Which could be the dimensions of her table?

- F 72 in. × 36 in.
- G 60 in. × 30 in.
- H 40 in. × 30 in.
- J 18 in. × 32 in.

3 One batch of Derrick's pancake recipe takes  $2\frac{3}{4}$  cups of milk. If Derrick makes 3 batches of his pancake recipe, how many cups of milk will he need?

- A  $8\frac{3}{4}$  cups
- B  $8\frac{1}{4}$  cups
- C  $6\frac{3}{4}$  cups
- D  $6\frac{1}{4}$  cups

4  $0.084 \div 0.6 =$

- F 7.14
- G 1.4
- H 0.714
- J 0.14

5 Price for Different Types of Reeds

Item	Number of Reeds per Box	Price per Box
Clarinet reeds	10	\$5.13
Oboe reeds	1	\$4.95
Alto saxophone reeds	5	\$8.42

Based on this table, what is the cost to buy 10 of each different type of reed?

- A \$18.50
- B \$26.92
- C \$71.47
- D \$98.35

6 Look at the table.

**Cost of Signs at Two Stores**

Store	Neon Sign	Wood Sign
A	\$589	\$227
B	\$534	\$285

What would be the *least* amount of money Jeremy's dad could spend if he bought one of each type of sign?

- F \$512
- G \$761
- H \$816
- J \$819

7 Maria has a piece of ribbon  $\frac{5}{6}$  foot long.

She cuts  $\frac{3}{4}$  foot off of the piece of ribbon. What is the length of the remaining piece of ribbon?

- A  $\frac{1}{12}$  foot
- B  $\frac{1}{8}$  foot
- C  $\frac{1}{6}$  foot
- D  $\frac{1}{4}$  foot

8 Harry worked  $1\frac{3}{4}$  hours on Friday and  $3\frac{1}{2}$  hours on Saturday. What was the total amount of time Harry worked on

those two days?

F  $4\frac{1}{4}$  hours

G  $4\frac{5}{8}$  hours

H  $5\frac{1}{4}$  hours

J  $5\frac{1}{2}$  hours

9  $6.596 \div 0.04 =$

A 164.9

B 16.49

C 6.06

D 0.61

10 Cody was paid \$15.00 for washing his mother's car. If he spends \$5.75 on a movie, \$1.50 on candy, and \$2.00 for a soda, which is closest to the amount he will have left?

F \$10.00

G \$8.00

H \$5.00

J \$0

Do not turn the  
page until your  
teacher tells you  
to do so.

11 There are 30 red marbles and 150 blue marbles in a box. What is the ratio of blue marbles to red marbles?

A  $\frac{180}{30}$

B  $\frac{30}{80}$

C  $\frac{150}{30}$

D  $\frac{30}{150}$

12 What is the least common multiple of 6 and 10?

F 20

G 30

H 60

J 90

13 Which statement is true?

A  $-599 > -385$

B  $4,119 < -3,513$

C  $-56,803 > -64,122$

D  $-85 > 89$

14 Which group contains *only* prime numbers?

F 5, 13, 29, and 47

G 7, 11, 27, and 43

H 7, 19, 33, and 41

J 11, 17, 37, and 39

15 What is the greatest common factor of 30, 42, and 48?

- A 2
- B 3
- C 6
- D 8

16 The picture shows the number of stars Angie received from her piano teacher for practicing.



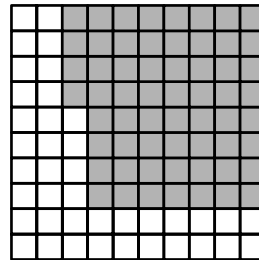
What is the ratio of the number of striped stars to black stars?

- F 4 to 3
- G 3 to 4
- H 4 to 10
- J 6 to 10

17 Which statement is true?

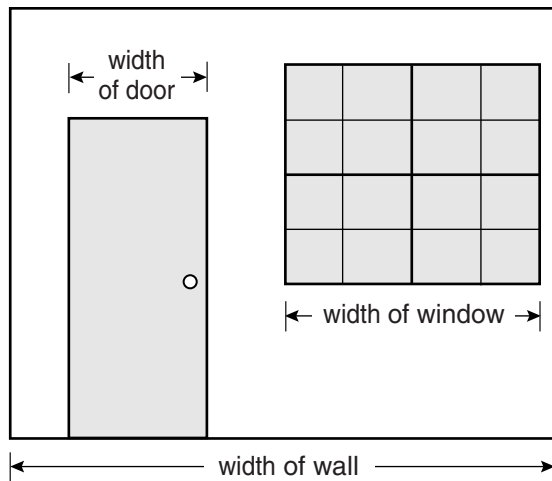
- A  $\frac{3}{4} > \frac{7}{12}$
- B  $\frac{2}{3} > \frac{6}{7}$
- C  $\frac{3}{8} > \frac{6}{11}$
- D  $\frac{1}{5} > \frac{1}{4}$

18 Which represents the part of the 10-by-10 grid that is shaded?



- F  $\frac{1}{2}$
- G  $\frac{3}{5}$
- H  $\frac{7}{10}$
- J  $\frac{3}{4}$

- 19 A wall in Kelly's house is diagrammed below.



Which is closest to the width of the wall?

- A 6 window widths
  - B 4 window widths
  - C 2 door widths
  - D 4 door widths
- 20 What is the sum of the measures of all the interior angles of any quadrilateral?
- F  $90^\circ$
  - G  $180^\circ$
  - H  $360^\circ$
  - J  $450^\circ$

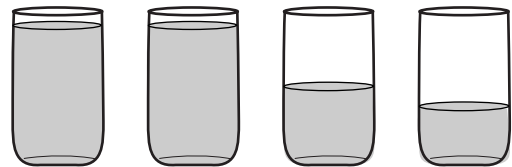
- 21 Which two figures *always* have four congruent sides?

- A Rhombus and square
- B Rectangle and rhombus
- C Square and equilateral triangle
- D Parallelogram and rectangle

- 22 If the diameter of a circle is 7 inches, which is closest to the circumference?

- F 21.98 in.
- G 38.47 in.
- H 43.96 in.
- J 153.86 in.

- 23 The glasses shown each hold 12 fluid ounces when full. The shaded portions show how much water Robert drinks on average every morning.

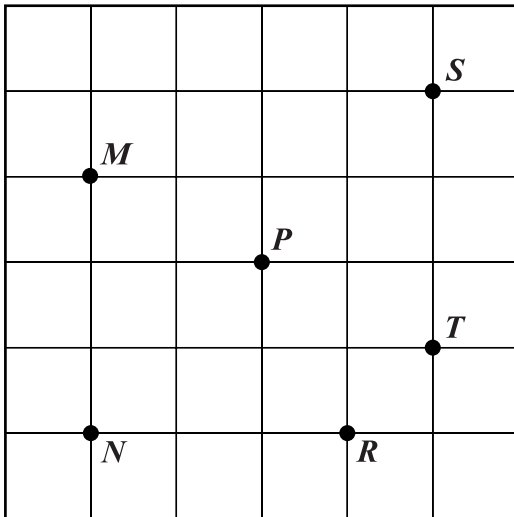


Which is closest to the amount of water Robert drinks on average every morning?

- A 3 fluid ounces
- B 18 fluid ounces
- C 22 fluid ounces
- D 34 fluid ounces



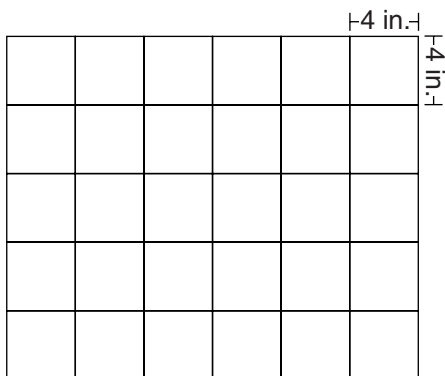
24 Six points are shown on the grid.



Which three points can be connected in the order shown to form an acute angle?

- F Points  $M$ ,  $N$ , and  $R$
- G Points  $M$ ,  $N$ , and  $P$
- H Points  $N$ ,  $R$ , and  $S$
- J Points  $N$ ,  $P$ , and  $S$

25 What is the area of the large rectangle shown if each small square is 4 inches wide and 4 inches long?

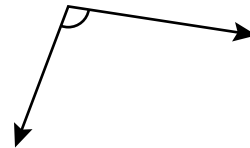


- A 480 sq in.
- B 120 sq in.
- C 80 sq in.
- D 30 sq in.

26 Which solid could *not* have two parallel faces?

- F Cube
- G Rectangular prism
- H Pyramid
- J Cylinder

27



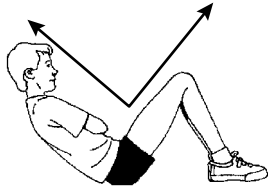
The measure of the angle shown is —

- A between  $0^\circ$  and  $45^\circ$
- B between  $45^\circ$  and  $90^\circ$
- C between  $90^\circ$  and  $180^\circ$
- D greater than  $180^\circ$

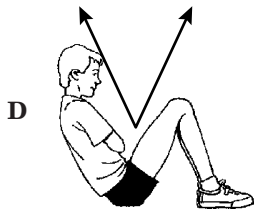
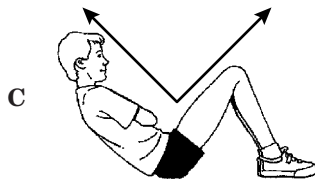
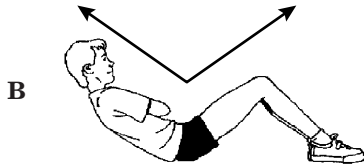
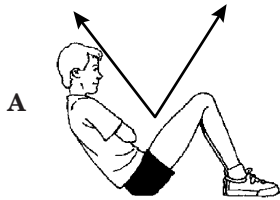
28 Which measurement represents the *greatest* volume?

- F 17 pints
- G 2 gallons
- H 35 cups
- J 9 quarts

29



Which picture appears to show Steve's body at an angle congruent to the angle shown above?



30 Which shape is *not* a quadrilateral?

- F Square
- G Parallelogram
- H Pentagon
- J Trapezoid

**31** Chrissy has 4 white towels, 2 yellow towels, and 3 blue towels in a bag. What is the probability that the first towel chosen at random from the bag will be white?

A  $\frac{1}{4}$

B  $\frac{1}{9}$

C  $\frac{4}{5}$

D  $\frac{4}{9}$

**32** What is the range of the numbers listed?

76, 59, 91, 22, 43, 57, 89, 76, 31

F 43

G 45

H 60

J 69

33 Which stem-and-leaf plot correctly displays this data?

15 32 21 13 36 10 23  
30 15 11 27 42 33

A

Stem	Leaf
1	0, 1, 3, 5, 5
2	1, 3, 7
3	0, 2, 3, 6
4	2

B

Stem	Leaf
1	1, 3, 5, 5
2	1, 3, 7
3	2, 3, 6
4	2

C

Stem	Leaf
1	0, 1, 3, 5
2	1, 3, 7
3	0, 2, 3, 6
4	2

D

Stem	Leaf
1	1, 3, 5
2	1, 3, 7
3	2, 3, 6
4	2

34 76, 79, 75, 77, 74

For the data listed, the value 76.2 represents the —

- F median
- G mode
- H range
- J mean

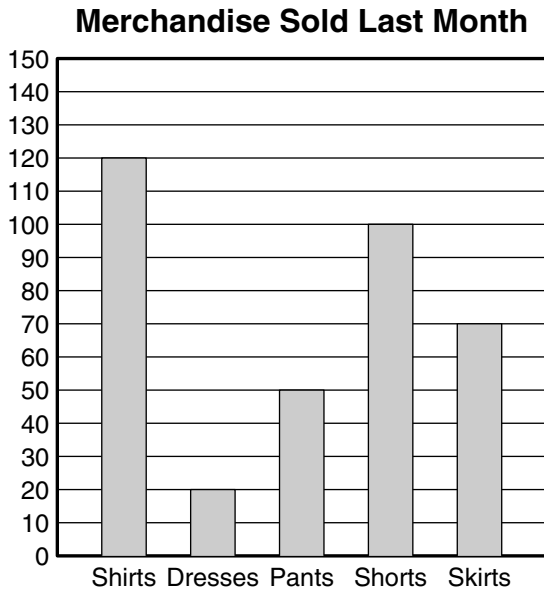
35 These are six songs that are on Jane's new CD.

<i>Pillar</i>
<i>Slim Slug</i>
<i>Burdock</i>
<i>Sweetbread</i>
<i>Tutu</i>
<i>Windmill Climber</i>

If her CD player plays the songs randomly, what is the probability that the song *Mongoose Omelette* will play first?

- A  $\frac{1}{6}$
- B 0
- C 0.6
- D 1

36 Look at the graph.



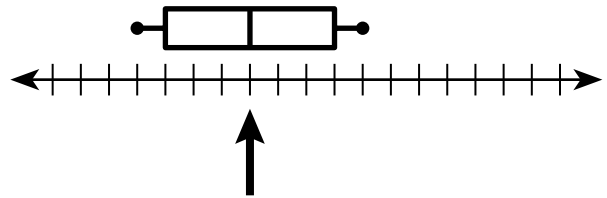
Which type of clothing appears to have had 5 times the sales of dresses?

- F Shorts
- G Pants
- H Shirts
- J Skirts

37 The number of pages Jane read in a book each day for one week are listed below.

{12, 18, 19, 11, 12, 15, 18}

Below is the box-and-whisker plot of this data. To which number is the arrow most likely pointing?



- A 11
- B 12
- C 15
- D 18

38 Mr. Warren requires his students to read 2 books: 1 book from list #1 and 1 book from list #2.

List #1	List #2
<i>A Trip to Asia</i>	<i>Mystery at Chelsea</i>
<i>Darlene's Hope</i>	<i>Notes From Kent</i>
<i>Sunset Hope</i>	<i>A Clan of Many</i>

What is the total number of different combinations for the 2 books?

- F 9
- G 6
- H 2
- J 1

- 39 Based on the geometric pattern shown, what is the value of  $8^5$ ?

$$\begin{aligned}8^1 &= 8 \\8^2 &= 64 \\8^3 &= 512 \\8^4 &= 4,096\end{aligned}$$

- A 13
- B 40
- C 20,480
- D 32,768

- 40 Which represents the variable in the following number sentence?

$$3 + v = 45$$

- F 3
- G  $v$
- H =
- J 45

- 41  $2.3 \times 10^7 =$

- A 230,000,000
- B 23,000,000
- C 2,300,000
- D 230,000

- 42 Which method could be used to solve the number sentence shown?

$$4x = 16$$

- F Subtract 4 from  $4x$ , and subtract 4 from 16
- G Subtract 4 from  $4x$ , and subtract 16 from 16
- H Divide  $4x$  by 4, and divide 16 by 16
- J Divide  $4x$  by 4, and divide 16 by 4

- 43 What value of  $y$  makes the number sentence shown true?

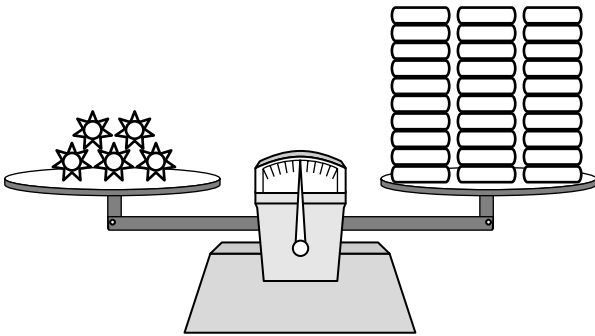
$$y - 3 = 15$$

- A 5
- B 12
- C 18
- D 45

44

★ represents  $w$   
□ represents 1

Use the representations above to answer the question.



If the scale is balanced, which number sentence does it best represent?

- F  $5w = 30$
- G  $w + 5 = 30$
- H  $5 - w = 30$
- J  $w \div 5 = 30$

- 45 The number 514 in scientific notation is written as —

- A  $5.14 \times 10^1$
- B  $5.14 \times 10^2$
- C  $51.4 \times 10^1$
- D  $514 \times 10^2$

- 46 Which is an equation?

F  $x + 6$

G  $5 > 7$

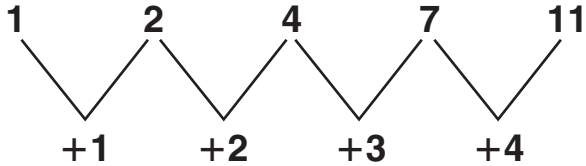
H  $x$

J  $x + \frac{1}{2} = 9$

47 Kale wrote the number pattern shown.

1, 2, 4, 7, 11, . . .



He noticed another pattern when he found that the differences between the numbers increased by 1 as shown below.



If the differences continue to increase by 1, what will be the 7th term in Kale's *original* pattern?

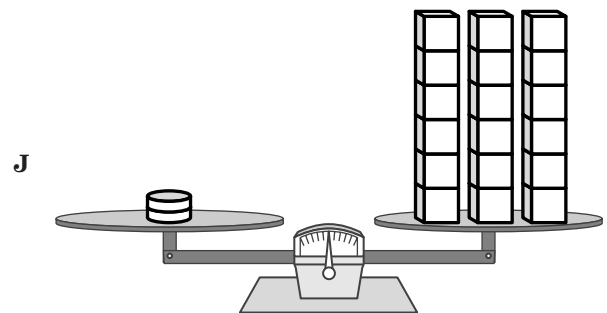
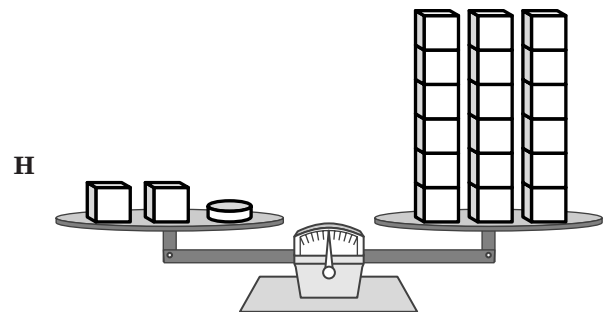
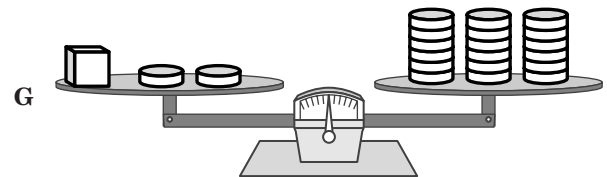
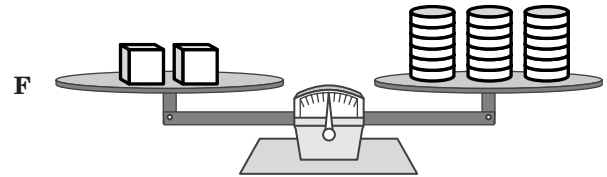
- A 15
- B 19
- C 21
- D 22

48

 represents  $r$   
 represents 1

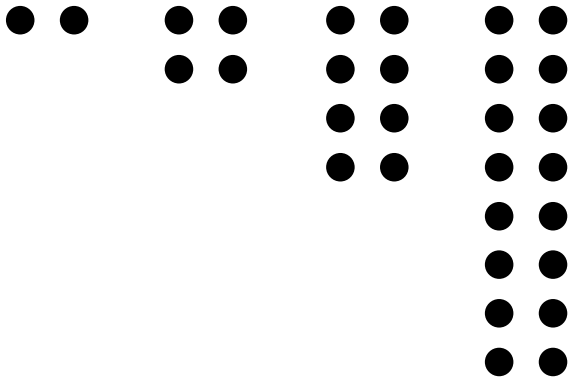
Using the representations above, which model best represents the following?

$$r + 2 = 18$$





49 The first four figures in a pattern are shown.



If the pattern continues to double the number of dots, what will be the total number of dots in the 6th figure in the pattern?

- A 128
- B 64
- C 32
- D 14

50 Gracie's pattern of increasing perfect squares is shown below.

25, 36, \_\_, 64, 81, 100

What number does Gracie need to square to find the missing term?

- F 5
- G 6
- H 7
- J 8

### Answer Key

<b>Test Sequence Number</b>	<b>Correct Answer</b>	<b>Reporting Category</b>	<b>Reporting Category Description</b>
1	B	006	Computation and Estimation
2	G	006	Computation and Estimation
3	B	006	Computation and Estimation
4	J	006	Computation and Estimation
5	C	006	Computation and Estimation
6	G	006	Computation and Estimation
7	A	006	Computation and Estimation
8	H	006	Computation and Estimation
9	A	006	Computation and Estimation
10	H	006	Computation and Estimation
11	C	005	Number and Number Sense
12	G	005	Number and Number Sense
13	C	005	Number and Number Sense
14	F	005	Number and Number Sense
15	C	005	Number and Number Sense
16	F	005	Number and Number Sense
17	A	005	Number and Number Sense
18	G	005	Number and Number Sense
19	D	007	Measurement and Geometry
20	H	007	Measurement and Geometry
21	A	007	Measurement and Geometry
22	F	007	Measurement and Geometry
23	D	007	Measurement and Geometry
24	G	007	Measurement and Geometry
25	A	007	Measurement and Geometry
26	H	007	Measurement and Geometry
27	C	007	Measurement and Geometry
28	J	007	Measurement and Geometry
29	C	007	Measurement and Geometry
30	H	007	Measurement and Geometry
31	D	008	Probability and Statistics
32	J	008	Probability and Statistics
33	A	008	Probability and Statistics
34	J	008	Probability and Statistics
35	B	008	Probability and Statistics
36	F	008	Probability and Statistics
37	C	008	Probability and Statistics
38	F	008	Probability and Statistics
39	D	009	Patterns, Functions, and Algebra
40	G	009	Patterns, Functions, and Algebra
41	B	009	Patterns, Functions, and Algebra
42	J	009	Patterns, Functions, and Algebra
43	C	009	Patterns, Functions, and Algebra
44	F	009	Patterns, Functions, and Algebra
45	B	009	Patterns, Functions, and Algebra
46	J	009	Patterns, Functions, and Algebra
47	D	009	Patterns, Functions, and Algebra
48	G	009	Patterns, Functions, and Algebra
49	B	009	Patterns, Functions, and Algebra
50	H	009	Patterns, Functions, and Algebra