

Introduction - Grade 4 Mathematics

The following released test questions are taken from the Grade 4 Mathematics Standards Test. This test is one of the California Standards Tests administered as part of the Standardized Testing and Reporting (STAR) Program under policies set by the State Board of Education.

All questions on the California Standards Tests are evaluated by committees of content experts, including teachers and administrators, to ensure their appropriateness for measuring the California academic content standards in Grade 4 Mathematics. In addition to content, all items are reviewed and approved to ensure their adherence to the principles of fairness and to ensure no bias exists with respect to characteristics such as gender, ethnicity, and language.

This document contains released test questions from the California Standards Test forms in 2003, 2004, and 2005. First on the pages that follow are lists of the standards assessed on the Grade 4 Mathematics Test. Next are released test questions. Following the questions is a table that gives the correct answer for each question, the content standard that each question is measuring, and the year each question last appeared on the test.

The following table lists each strand/reporting cluster, the number of items that appear on the exam, and the number of released test questions that appear in this document.

STRAND/REPORTING CLUSTER	NUMBER OF QUESTIONS ON EXAM	NUMBER OF RELEASED TEST QUESTIONS
Number Sense – Decimals, Fractions, and Negative Numbers	16	13
Number Sense – Operations and Factoring	15	11
Algebra and Functions	18	12
Measurement and Geometry	12	9
Statistics, Data Analysis, and Probability	4	3
TOTAL	65	48

In selecting test questions for release, three criteria are used: (1) the questions adequately cover a selection of the academic content standards assessed on the Grade 4 Mathematics Test; (2) the questions demonstrate a range of difficulty; and (3) the questions present a variety of ways standards can be assessed. These released test questions do not reflect all of the ways the standards may be assessed. Released test questions will not appear on future tests.

For more information about the California Standards Tests, visit the California Department of Education's Web site at <http://www.cde.ca.gov/ta/tg/sr/resources.asp>.

THE NUMBER SENSE STRAND

In Grade 4, there are two reporting clusters within the Number Sense strand: 1) Decimals, Fractions, and Negative Numbers and 2) Operations and Factoring. This booklet contains released test questions for each of these clusters.

The following 10 California content standards are included in the Decimals, Fractions, and Negative Numbers reporting cluster of the Number Sense strand and are represented in this booklet by 13 test questions. These questions represent only some ways in which these standards may be assessed on the Grade 4 California Mathematics Standards Test.

CALIFORNIA CONTENT STANDARDS IN THIS REPORTING CLUSTER

Number Sense	
Standard Set 1.0	Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions. Students use the concepts of negative numbers:
4NS1.1*	Read and write whole numbers in the millions.
4NS1.2*	Order and compare whole numbers and decimals to two decimal places.
4NS1.3*	Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.
4NS1.5	Explain different interpretations of fractions, for example, parts of a whole, parts of a set, and division of whole numbers by whole numbers; explain equivalents of fractions (see Standard 4.0).
4NS1.6	Write tenths and hundredths in decimal and fraction notations, and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or $.50$; $7/4 = 1\ 3/4 = 1.75$).
4NS1.7	Write the fraction represented by a drawing of parts of a figure; represent a given fraction by using drawings; and relate a fraction to a simple decimal on a number line.
4NS1.8*	Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in "owing").
4NS1.9*	Identify on a number line the relative position of positive fractions, positive mixed numbers, and positive decimals to two decimal places.
Standard Set 2.0	Students extend their use and understanding of whole numbers to the addition and subtraction of simple decimals:
4NS2.1	Estimate and compute the sum or difference of whole numbers and positive decimals to two places.
4NS2.2	Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.

* Denotes key standards (*Mathematics Framework for California Public Schools*)

The following six California content standards are included in the Operations and Factoring reporting cluster of the Number Sense strand and are represented in this booklet by 11 test questions. These questions represent only some ways in which these standards may be assessed on the Grade 4 California Mathematics Standards Test.

CALIFORNIA CONTENT STANDARDS IN THIS REPORTING CLUSTER

Number Sense

Standard Set 3.0*	Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:
4NS3.1*	Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multidigit numbers.
4NS3.2*	Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multidigit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results.
4NS3.3*	Solve problems involving multiplication of multidigit numbers by two-digit numbers.
4NS3.4*	Solve problems involving division of multidigit numbers by one-digit numbers.
Standard Set 4.0	Students know how to factor small whole numbers:
4NS4.1	Understand that many whole numbers break down in different ways (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$).
4NS4.2*	Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.

* Denotes key standards (*Mathematics Framework for California Public Schools*)

THE ALGEBRA AND FUNCTIONS STRAND/REPORTING CLUSTER

The following seven California content standards are included in the Algebra and Functions strand/reporting cluster and are represented in this booklet by 12 test questions. These questions represent only some ways in which these standards may be assessed on the Grade 4 California Mathematics Standards Test.

CALIFORNIA CONTENT STANDARDS IN THIS STRAND/CLUSTER

Algebra and Functions

Standard Set 1.0 Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:

4AF1.1 Use letters, boxes, or other symbols to stand for any number in simple expressions or equations (e.g., demonstrate an understanding and the use of the concept of a variable).

4AF1.2* Interpret and evaluate mathematical expressions that now use parentheses.

4AF1.3* Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.

4AF1.4 Use and interpret formulas (e.g., area = length \times width or $A = lw$) to answer questions about quantities and their relationships.

4AF1.5* Understand that an equation such as $y = 3x + 5$ is a prescription for determining a second number when a first number is given.

Standard Set 2.0* Students know how to manipulate equations:

4AF2.1* Know and understand that equals added to equals are equal.

4AF2.2* Know and understand that equals multiplied by equals are equal.

* Denotes key standards (*Mathematics Framework for California Public Schools*)

THE MEASUREMENT AND GEOMETRY STRAND/REPORTING CLUSTER

The following 15 California content standards are included in the Measurement and Geometry strand/reporting cluster and are represented in this booklet by nine test questions. These questions represent only some ways in which these standards may be assessed on the Grade 4 California Mathematics Standards Test.

CALIFORNIA CONTENT STANDARDS IN THIS STRAND/CLUSTER

Measurement and Geometry

Standard Set 1.0 Students understand perimeter and area:

4MG1.1	Measure the area of rectangular shapes by using appropriate units such as square centimeter (cm^2), square meter (m^2), square kilometer (km^2), square inch (in^2), square yard (yd^2), or square mile (mi^2).
4MG1.2	Recognize that rectangles that have the same area can have different perimeters.
4MG1.3	Understand that rectangles that have the same perimeter can have different areas.
4MG1.4	Understand and use formulas to solve problems involving perimeters and areas of rectangles and squares. Use those formulas to find the areas of more complex figures by dividing the figures into basic shapes.

Standard Set 2.0* Students use two-dimensional coordinate grids to represent points and graph lines and simple figures:

4MG2.1*	Draw the points corresponding to linear relationships on graph paper (e.g., draw 10 points on the graph of the equation $y = 3x$ and connect them by using a straight line).
4MG2.2*	Understand that the length of a horizontal line segment equals the difference of the x -coordinates.
4MG2.3*	Understand that the length of a vertical line segment equals the difference of the y -coordinates.

Standard Set 3.0 Students demonstrate an understanding of plane and solid geometric objects and use this knowledge to show relationships and solve problems:

4MG3.1	Identify lines that are parallel and perpendicular.
4MG3.2	Identify the radius and diameter of a circle.
4MG3.3	Identify congruent figures.
4MG3.4	Identify figures that have bilateral and rotational symmetry.

4MG3.5	Know the definitions of a right angle, an acute angle, and an obtuse angle. Understand that 90° , 180° , 270° , and 360° are associated, respectively with $1/4$, $1/2$, $3/4$, and full turns.
4MG3.6	Visualize, describe, and make models of geometric solids (e.g., prisms, pyramids) in terms of the number and shape of faces, edges, and vertices; interpret two-dimensional representations of three-dimensional objects; and draw patterns (of faces) for a solid that, when cut and folded, will make a model of the solid.
4MG3.7	Know the definitions of different triangles (e.g., equilateral, isosceles, scalene) and identify their attributes.
4MG3.8	Know the definition of different quadrilaterals (e.g., rhombus, square, rectangle, parallelogram, trapezoid).

* Denotes key standards (*Mathematics Framework for California Public Schools*)

THE STATISTICS, DATA ANALYSIS, AND PROBABILITY STRAND/REPORTING CLUSTER

The following five California content standards are included in the Statistics, Data Analysis, and Probability strand/reporting cluster and are represented in this booklet by three test questions. These questions represent only some ways in which these standards may be assessed on the Grade 4 California Mathematics Standards Test.

CALIFORNIA CONTENT STANDARDS IN THIS STRAND/CLUSTER

Statistics, Data Analysis, and Probability

Standard Set 1.0 Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:

4PS1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.

4PS1.2 Identify the mode(s) for sets of categorical data and the mode(s), median, and any apparent outliers for numerical data sets.

4PS1.3 Interpret one- and two-variable data graphs to answer questions about a situation.

Standard Set 2.0 Students make predictions for simple probability situations:

4PS2.1 Represent all possible outcomes for a simple probability situation in an organized way (e.g., tables, grids, tree diagrams).

4PS2.2 Express outcomes of experimental probability situations verbally and numerically (e.g., 3 out of 4; $\frac{3}{4}$).

* Denotes key standards (*Mathematics Framework for California Public Schools*)

1 Which of these is the number 5,005,014?

- A five million, five hundred, fourteen
 - B five million, five thousand, fourteen
 - C five thousand, five hundred, fourteen
 - D five billion, five million, fourteen
-

2 The estimated cost to build a new baseball stadium is ninety-four million dollars. What is this number in standard form?

- A \$90,400
 - B \$94,000
 - C \$90,400,000
 - D \$94,000,000
-

3 Which of the following has the greatest value?

- A 12.1
 - B 0.97
 - C 4.23
 - D 5.08
-

4 What is 67,834,519 rounded to the nearest hundred thousand?

- A 67,000,000
- B 67,800,000
- C 67,830,000
- D 67,900,000

5 What is 583,607 rounded to the nearest hundred?

- A 583,000
 - B 583,600
 - C 583,700
 - D 84,000
-

6 Which fraction represents the largest part of a whole?

- A $\frac{1}{6}$
 - B $\frac{1}{4}$
 - C $\frac{1}{3}$
 - D $\frac{1}{2}$
-

7 Which fraction means the same as 0.17?

- A $\frac{17}{10}$
- B $\frac{17}{100}$
- C $\frac{17}{1000}$
- D $\frac{17}{1}$

Released Test Questions

Math

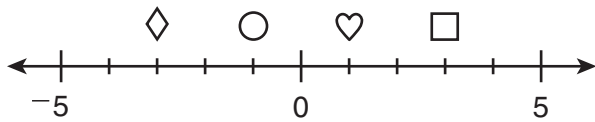
4

8 The numbers in the pattern decrease by the same amount each time. What are the next three numbers in this pattern?

10, 8, 6, 4, 2, __, __, __

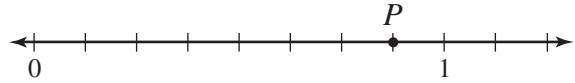
- A 0, -2, -4
- B 0, -1, -2
- C 0, 2, 4
- D 0, 1, 2

9 Which symbol is located at -3 on the number line below?



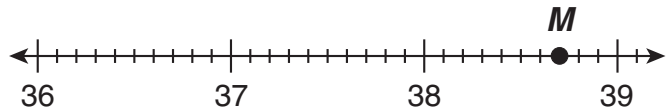
- A
- B
- C
- D

10 What fraction is best represented by point *P* on this number line?



- A $\frac{1}{8}$
- B $\frac{1}{5}$
- C $\frac{3}{4}$
- D $\frac{7}{8}$

11 On the number line below, what number does point *M* represent?



- A $36\frac{2}{5}$
- B $37\frac{1}{5}$
- C $38\frac{7}{10}$
- D $39\frac{1}{10}$

- 12** On Thursday Chris drove 167 miles, on Friday he drove 68 miles, and on Saturday he drove 73 miles. Approximately how many miles did Chris drive in the three days?

A 100 miles
 B 200 miles
 C 300 miles
 D 400 miles

- 13** The total length of a vehicle is 205.83 inches. What is the length of the vehicle rounded to the nearest whole number?

A 200 inches
 B 205 inches
 C 206 inches
 D 210 inches

- 14** $5894 - 2608 =$

A 3276
 B 3286
 C 3294
 D 3296

- 15**
$$\begin{array}{r} 2489 \\ + 1678 \\ \hline \end{array}$$

A 3057
 B 4067
 C 4167
 D 5157

- 16** $267 \div 6 =$

A 43
 B 43 R3
 C 44
 D 44 R3

- 17** Justin solved the problem below. Which expression could be used to check his answer?

$$\begin{array}{r} 454r2 \\ 3 \overline{)1364} \end{array}$$

A $(454 \times 3) + 2$
 B $(454 \times 2) + 3$
 C $(454 + 3) \times 2$
 D $(454 + 2) \times 3$

- 18** There are 58 cases of soda in a warehouse. If there are 24 cans of soda in each case, how many cans of soda are in the warehouse?

A 1392
 B 1362
 C 1292
 D 1262

Released Test Questions

Math

4

- 19** There are 40 teachers at a school. Each teacher is provided with 2500 sheets of paper. How many sheets of paper is this in all?
- A 10,000
B 100,000
C 1,000,000
D 10,000,000
-
- 20** There are 9 rows of seats in a theater. Each row has the same number of seats. If there is a total of 162 seats, how many seats are in each row?
- A 17
B 18
C 19
D 20
-
- 21** Maria read a 210-page book in 7 days. She read the same number of pages each day. How many pages did she read each day?
- A 30
B 32
C 34
D 36
-
- 22** Which of these is another way to write the product 12×7 ?
- A $2 \times 3 \times 7$
B $3 \times 4 \times 7$
C $3 \times 6 \times 7$
D $6 \times 6 \times 7$
-
- 23** Which statement is true?
- A The only factors of 8 are 1 and 8.
B The only factors of 9 are 1 and 9.
C The only factors of 10 are 1 and 10.
D The only factors of 11 are 1 and 11.
-
- 24** Which is a prime number?
- A 4
B 5
C 8
D 9
-
- 25** Which number is represented by n ?
- $$8 \times n = 128$$
- A 13
B 14
C 16
D 19

- 26** What is the value of the expression below?

$$(13 + 4) - (7 \times 2)$$

- A 20
- B 12
- C 10
- D 3

- 27** What is the value of the expression below if $a = 3$?

$$15 - (a + 8)$$

- A 4
- B 12
- C 20
- D 26

- 28** $(18 + 3) \div (3 - 2) =$

- A 5
- B 17
- C 19
- D 21

- 29** What is the value of x ?

$$(16 \div 2) \times (4 - 2) = x$$

- A 0
- B 16
- C 30
- D 32

- 30** $5 \times (8 - 2) =$

- A 25
- B 30
- C 38
- D 42

- 31** Which equation below represents the area (A) of the rectangle in square centimeters?



- A $45 = A \times 9$
- B $A = 45 \times 9$
- C $A = (2 \times 45) + (2 \times 9)$
- D $45 = (2 \times A) + (2 \times 9)$

- 32** Look at the problem below.

$$\square = \triangle + 4$$

If $\triangle = 7$, what is \square ?

- A 3
- B 7
- C 11
- D 14

Released Test Questions

- 33** The sum of x plus y equals 26. If $x = 17$, which equation can be used to find the value of y ?

A $y - 17 = 26$
 B $17 + y = 26$
 C $x - y = 26$
 D $x + 17 = 26$

- 34** The letters S and T stand for numbers. If $S - 100 = T - 100$, which statement is true?

A $S = T$
 B $S > T$
 C $S = T + 100$
 D $S > T + 100$

- 35** $35 + 6 = 35 + \square$

A $2 + 2$
 B 2×2
 C $2 + 3$
 D 2×3

- 36** What number goes in the box to make this number sentence true?

$$(7 - 3) \times 5 = 4 \times \square$$

A 3
 B 4
 C 5
 D 7

- 37** Which statement about the figures is true?

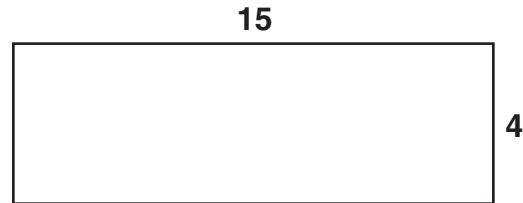


Figure 1

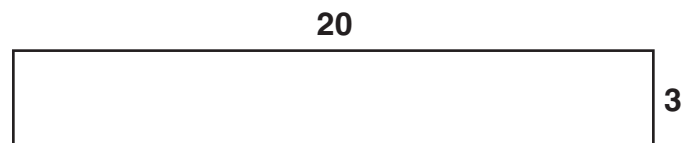
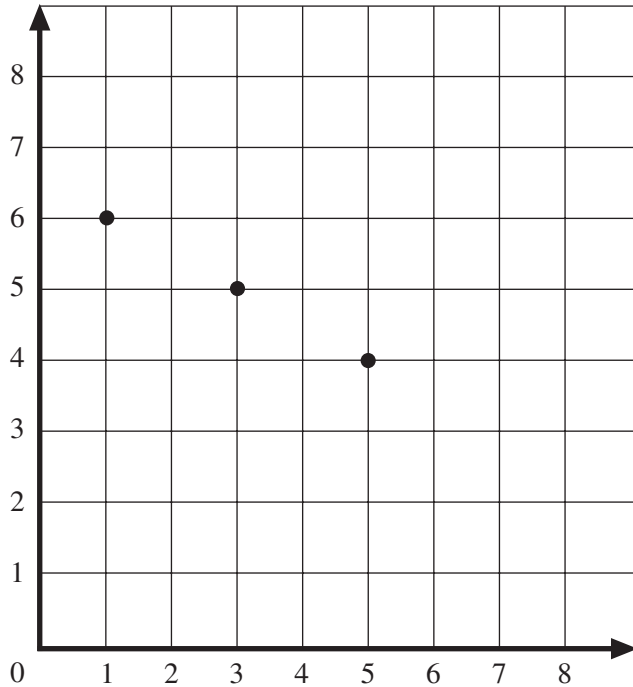


Figure 2

- A They both have the same area.
 B They both have the same width.
 C They both have the same length.
 D They both have the same perimeter.

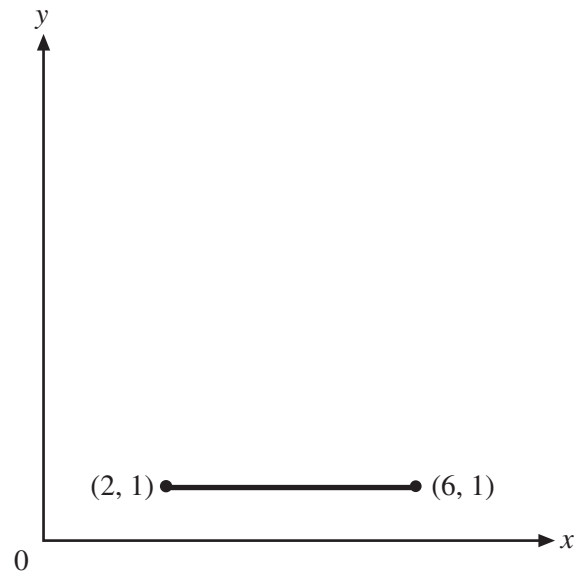
- 38** Chu plotted 3 points on a grid. The 3 points were all on the same straight line.



If she plots another point on the line, what could be its coordinates?

- A (2, 5)
- B (4, 4)
- C (6, 3)
- D (7, 3)

- 39** Look at the line segment shown below.



What is the length of the line segment?

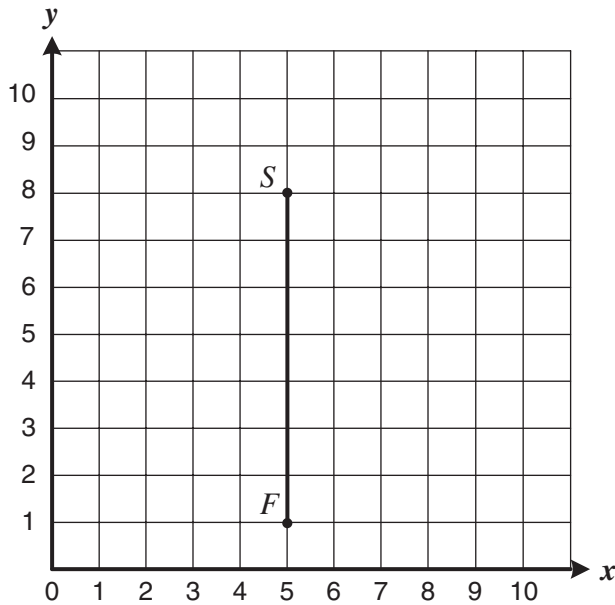
- A 1 unit
- B 2 units
- C 4 units
- D 6 units

Released Test Questions

Math

4

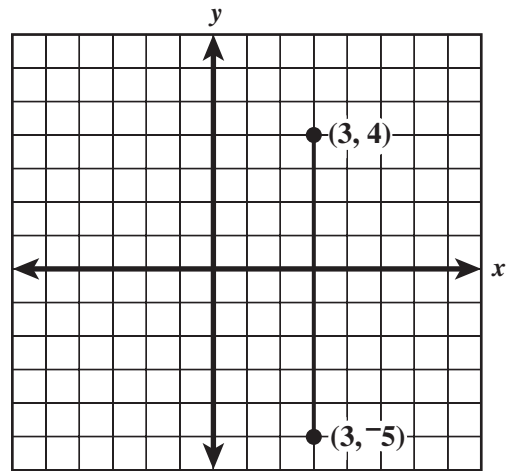
- 40** Look at the graph. Point S is at $(5, 8)$. Point F is at $(5, 1)$.



How can you find the number of units from point S to point F ?

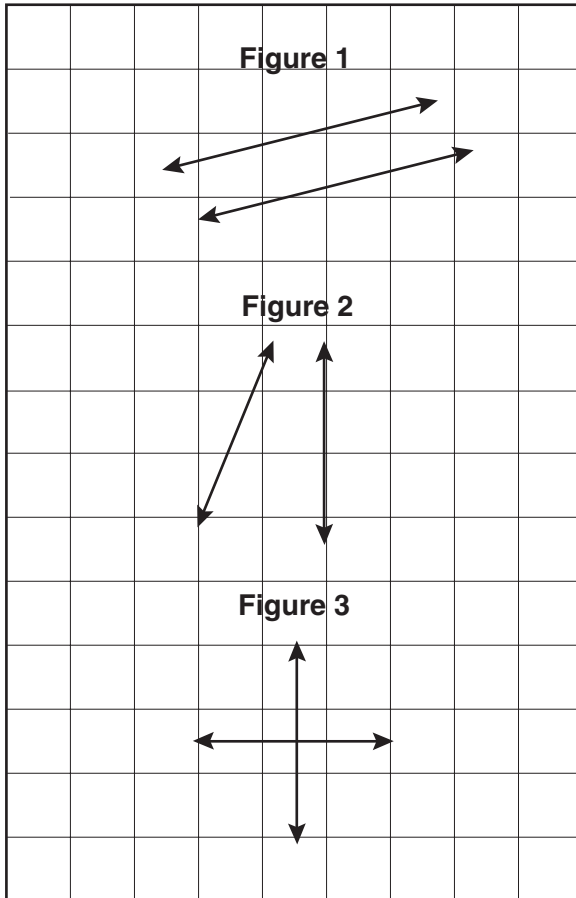
- A Add: $5 + 8$
- B Add: $1 + 8$
- C Subtract: $8 - 5$
- D Subtract: $8 - 1$

- 41** What is the length of the line segment shown on the grid?



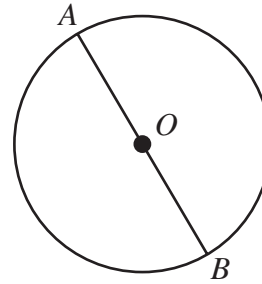
- A 9 units
- B 7 units
- C 5 units
- D 4 units

42 Which figures below show pairs of lines that appear to be parallel?



- A Figure 1 only
- B Figure 3 only
- C Figure 1 and Figure 2
- D Figure 2 and Figure 3

43 Look at the circle with center O .



The line segment AB appears to be

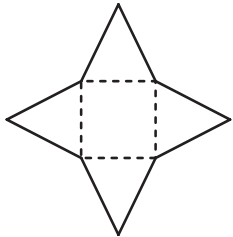
- A an arc.
- B a perimeter.
- C a radius.
- D a diameter.

Released Test Questions

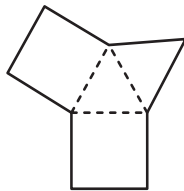
Math

4

- 44** Which figure can form a pyramid when folded on the dotted lines without overlapping?



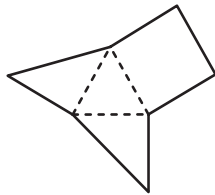
A



C



B

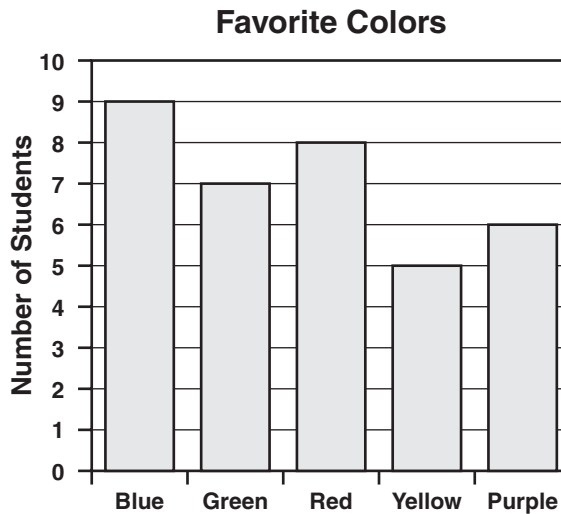


D

- 45** What kind of a triangle always has 3 acute angles and 3 sides the same length?

- A isosceles
- B right
- C equilateral
- D scalene

46 Pietro surveyed 35 students about their favorite colors and made this bar graph.



Which of the following tally charts did he use to make this graph?

Favorite Colors

Blue	
Green	
Red	
Yellow	
Purple	

A

Favorite Colors

Blue	
Green	
Red	
Yellow	
Purple	

C

Favorite Colors

Blue	
Green	
Red	
Yellow	
Purple	

B

Favorite Colors

Blue	
Green	
Red	
Yellow	
Purple	

D

Released Test Questions

Math

4

47 What is the mode of this set of numbers?

{2, 2, 2, 3, 4, 4, 6}

- A 2
- B 3
- C 4
- D 6

48 Royce has a bag with 8 red marbles, 4 blue marbles, 5 green marbles, and 9 yellow marbles all the same size. If he pulls out 1 marble without looking, which color is he most likely to choose?

- A red
- B blue
- C green
- D yellow

Question Number	Correct Answer	Standard	Year of Test
1	<i>B</i>	4NS1.1	2003
2	<i>D</i>	4NS1.1	2004
3	<i>A</i>	4NS1.2	2004
4	<i>B</i>	4NS1.3	2003
5	<i>B</i>	4NS1.3	2005
6	<i>D</i>	4NS1.5	2004
7	<i>B</i>	4NS1.6	2003
8	<i>A</i>	4NS1.8	2004
9	<i>A</i>	4NS1.8	2005
10	<i>D</i>	4NS1.9	2003
11	<i>C</i>	4NS1.9	2004
12	<i>C</i>	4NS2.1	2005
13	<i>C</i>	4NS2.2	2005
14	<i>B</i>	4NS3.1	2003
15	<i>C</i>	4NS3.1	2005
16	<i>D</i>	4NS3.2	2004
17	<i>A</i>	4NS3.2	2005
18	<i>A</i>	4NS3.3	2003
19	<i>B</i>	4NS3.3	2004
20	<i>B</i>	4NS3.4	2003
21	<i>A</i>	4NS3.4	2005
22	<i>B</i>	4NS4.1	2003
23	<i>D</i>	4NS4.2	2004
24	<i>B</i>	4NS4.2	2005
25	<i>C</i>	4AF1.1	2004
26	<i>D</i>	4AF1.2	2003
27	<i>A</i>	4AF1.2	2004
28	<i>D</i>	4AF1.2	2005
29	<i>B</i>	4AF1.2	2005
30	<i>B</i>	4AF1.3	2003

Question Number	Correct Answer	Standard	Year of Test
31	<i>B</i>	4AF1.4	2004
32	<i>C</i>	4AF1.5	2004
33	<i>B</i>	4AF1.5	2005
34	<i>A</i>	4AF2.1	2003
35	<i>D</i>	4AF2.1	2005
36	<i>C</i>	4AF2.2	2003
37	<i>A</i>	4MG1.2	2004
38	<i>D</i>	4MG2.1	2003
39	<i>C</i>	4MG2.2	2003
40	<i>D</i>	4MG2.3	2004
41	<i>A</i>	4MG2.3	2005
42	<i>A</i>	4MG3.1	2004
43	<i>D</i>	4MG3.2	2003
44	<i>A</i>	4MG3.6	2005
45	<i>C</i>	4MG3.7	2005
46	<i>A</i>	4PS1.1	2005
47	<i>A</i>	4PS1.2	2004
48	<i>D</i>	4PS2.2	2003