Alabama Reading and Mathematics Test^{+}

Item Specifications

for

Mathematics

Grade 3

Alabama State Department of Education
Montgomery, Alabama
December 2011

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SAMPLE RESPONSE FORMAT 84

INTRODUCTION

This document provides specific information about the *Alabama Reading and Mathematics Test*+ (ARMT+). Educators representing each State Board of Education district as well as both city and county school systems served on committees to determine the content standards on which the ARMT+ is based. In addition, educators from throughout the state of Alabama served on committees to review the content of the tests, including selecting and reviewing specific mathematics test items, and determining achievement levels.

Teachers must be familiar with the information in this document so that they may incorporate effective teaching of the mathematics content standards with classroom assessments. Using classroom assessments with similar test formats from time to time will help to enable students to demonstrate proficiency on the various content standards in mathematics.

Two item types are included in the ARMT+. Multiple-choice and open-ended items assess student performance on the ARMT+ in mathematics. Multiple-choice items carry a point value of 1, while open-ended items carry a point value of 3. In this document, teachers will see representative item types for each mathematics content standard.

Content Standard	A statement of what students should know and be able to do by the end of the academic year
Item Type	Multiple-choice, open-ended items
Additional Information	Further information about the test items for the content standard
Sample Items	A collection of item types for each content standard
Answer Key	Answers for multiple-choice items
Scoring Rubrics for Open-Ended Items	Scoring guide for open-ended items

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CONTENT STANDARDS
Grade 3

CONTENT STANDARD	POINTS POSSIBLE
Number and Operations	
1- Demonstrate number sense by comparing, ordering, and expanding whole numbers through 9,999.	4
2- Solve addition and subtraction problems, including word problems, involving two- and three-digit numbers with and without regrouping.	9
3- Multiply whole numbers with and without regrouping, using single-digit multipliers.	4
4- Divide whole numbers using two-digit dividends and one-digit divisors.	4
5- Model equivalent fractions with concrete objects or pictorial representations.	4
6- Use coins to make change up to $1.00.	5
	30
Algebra	
7- Complete a given numeric or geometric pattern.	6
	6
Geometry	
8- Identify geometric representations for points, lines, perpendicular lines, parallel lines, angles, and rays.	4
9- Specify locations on a coordinate grid by using horizontal and vertical movements.	6
	10
Measurement	
10- Measure length in metric units.	3
11- Determine elapsed time to the day with calendars and to the hour with a clock.	3
	6
Data Analysis and Probability	
12- Recognize data as either categorical or numerical.	3
13- Determine the likelihood of different outcomes in a simple experiment.	3
	6
TOTAL POINTS POSSIBLE	**58**

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ITEMS BY CONTENT STANDARD

DIRECTIONS (These are the directions read by students and the test administrator.)

Read the problem and find the answer.

If the problem has a multiple-choice answer, darken the bubble in the correct space in your answer document.

For the problems that ask you to show your work, use the space given in your answer document. Be sure to show all of your work or explain how you got your answer in the space given.

For all problems, be sure to check your answers.

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NUMBER AND OPERATIONS

Content Standard 1

Demonstrate number sense by comparing, ordering, and expanding whole numbers through 9,999.

Item Type

Multiple-choice

Additional Information

Word problems/real-life situations may be used.
Tables and charts may be used.
In comparing numbers, *greater than*, *less than*, *greatest*, *least*, *more than*, or *between* may be used.

Sample Multiple-Choice Items

1. Which of the following is the greatest?

A 7,676
B 7,695 *
C 7,689
D 7,668

2. Last month, 6,043 books were borrowed from the library.

   Which shows 6,043 in expanded form?

A 600 + 40 + 3
B 6,000 + 40 + 3 *
C 6,000 + 400 + 3
D 6,000 + 400 + 30

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Movers are loading a moving van with the objects listed in the table below.

Objects To Be Loaded

Object	Weight (in pounds)
Bookshelf	87
Bed	119
Table	78
Piano	203

3. Which shows the weights in order from greatest to least?

A 87, 119, 78, 203
B 119, 78, 87, 203
C 87, 78, 203, 119
D 203, 119, 87, 78 *

4. Which of the following is less than 5,487?

A 5,482 *
B 5,505
C 5,492
D 5,489

The chart shows the total number of miles driven by different school bus drivers over a 5-day period.

School Bus Drivers

Driver	Number of Miles
Lois	516
Henry	564
John	652
Earl	617
Elaine	583

5. Which driver on the chart drove between 550 miles and 580 miles over this 5-day period?

A Lois
B John
C Henry *
D Elaine

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6. Which of the following is greater than 6,211?

A 6,207
B 6,199
C 6,235 *
D 6,010

7. Which of the following is the least?

A 4,124
B 4,029
C 4,120
D 4,023 *

8. On Brittany's farm, there are 105 pigs, 76 chickens, 84 cows, and 91 sheep.

   Which list shows the numbers of animals in order from greatest to least?

A 105, 76, 84, 91
B 76, 105, 84, 91
C 91, 84, 76, 105
D 105, 91, 84, 76 *

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Answer Key

Content Standard 1

Sample Multiple-Choice

1. **B**
2. **B**
3. **D**
4. **A**
5. **C**
6. **C**
7. **D**
8. **D**

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NUMBER AND OPERATIONS

Content Standard 2

Solve addition and subtraction problems, including word problems, involving two- and three-digit numbers with and without regrouping.

Item Type

Multiple-choice
Open-ended

Additional Information

Word problems/real-life situations may be used.
Tables and charts may be used.
Multiple steps may be used.
Time may be used.

Sample Multiple-Choice Items

1. $156 + 34 + 19 = \square$

A 109
B 199
C 209 *
D 686

2. $276 - 70 = \square$

200	206	216	269
A	**B** *	**C**	**D**

3.
$$\begin{array}{r} 92 \\ -\ 35 \\ \hline \end{array}$$

A 57 *
B 63
C 67
D 127

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4. Scott listened to his radio for 23 minutes on Tuesday morning and for 49 minutes on Tuesday night.

   How many total minutes did Scott listen to his radio on Tuesday?

A 26
B 62
C 63
D 72 *

5. Pamela had 17 charms on her bracelet. Stefany had exactly 14 more charms than Pamela.

   How many charms did Stefany have?

A 3
B 21
C 31 *
D 48

6. On Monday, Melina answered a total of 47 phone calls by 10:00 A.M. By 2:00 P.M. she had answered a total of 84 phone calls.

   How many phone calls did Melina answer between 10:00 A.M. and 2:00 P.M. on Monday?

A 37 *
B 47
C 121
D 131

7. Brian delivered 139 newspapers on Saturday. On Sunday, Tom delivered 234 newspapers.

   How many more newspapers did Tom deliver than Brian?

A 95 *
B 105
C 163
D 373

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Sample Open-Ended Items

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

1. Jake and Katie played a video game. Jake scored 289 points. Katie scored 315 points.

   a. How many more points did Katie score than Jake?

   b. What was the total number of points Jake and Katie scored altogether?

   c. Two new players scored a total of 799 points. How many more points did the two new players score than Jake and Katie did altogether?

Show all your work or explain your answer for each part in the space provided in the answer document.

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

2. Ms. Johnson's class sold 348 candles for a fundraiser. Mr. Steven's class sold 186 fewer candles than Ms. Johnson's class.

   a. How many candles did Mr. Steven's class sell?

   b. How many candles did Ms. Johnson's and Mr. Steven's classes sell altogether?

   c. The goal was to sell 750 candles altogether. How many more candles would Ms. Johnson's and Mr. Steven's classes need to sell altogether to meet the goal?

Show all your work or explain your answer for each part in the space provided in the answer document.

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You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

3. On Monday, the cafeteria sold 212 cartons of milk and 185 lunches.

   a. How many more cartons of milk did the cafeteria sell than lunches on Monday?

   b. What was the total number of cartons of milk and lunches sold on Monday?

   c. On Tuesday, the cafeteria sold 57 more cartons of milk than lunches. The cafeteria sold 203 cartons of milk on Tuesday. How many lunches did the cafeteria sell on Tuesday?

Show all your work or explain your answer for each part in the space provided in the answer document.

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

4. Abby read a story. The story had two pages with 387 words on the first page and 96 words on the second page.

   a. What is the total number of words in the story?

   b. How many more words are on the first page than on the second page of the story?

   c. Abby read another story with 867 words. What is the difference in the number of words in the two stories?

Show all your work or explain your answer for each part in the space provided in the answer document.

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Answer Key

Content Standard 2

Sample Multiple-Choice

1. **C**
2. **B**
3. **A**
4. **D**
5. **C**
6. **A**
7. **A**

Sample Open-Ended

1. Sample Response(s):

a. 315 – 289 = 26

OR

Equivalent

b. 289 + 315 = 604

OR

Equivalent

c. 799 – 604 = 195

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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2. Sample Response(s):

a. 348 – 186 = 162

OR

Equivalent

b. 348 + 162 = 510

OR

Equivalent

c. 750 – 510 = 240

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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3. Sample Response(s):

a. 212 – 185 = 27

OR

Equivalent

b. 212 + 185 = 397

OR

Equivalent

c. 203 – 57 = 146

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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4. Sample Response(s):

a. 387 + 96 = 483

OR

Equivalent

b. 387 – 96 = 291

OR

Equivalent

c. 867 – 483 = 384

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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NUMBER AND OPERATIONS

Content Standard 3

Multiply whole numbers with and without regrouping using single-digit multipliers.

Item Type

Multiple-choice

Additional Information

No word problems/real-life situations will be used.
Bare computational problems will be used.
One- to three-digit multiplicands will be used.
Regrouping may be required.

Sample Multiple-Choice Items

1.

$$\begin{array}{r} 47 \\ \times\ \ 5 \\ \hline \end{array}$$

A	B	C	D*
52	205	212	235

2. $376 \times 4 = \square$

A	B	C	D*
1,204	1,284	1,484	1,504

3. $273 \times 6 = \square$

A	B	C	D*
1,228	1,238	1,628	1,638

4. $23 \times 6 = \square$

A	B	C	D*
89	128	129	138

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Answer Key

Content Standard 3

Sample Multiple-Choice

1. **D**
2. **D**
3. **D**
4. **D**

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NUMBER AND OPERATIONS

Content Standard 4

Divide whole numbers using two-digit dividends and one-digit divisors.

Item Type

Multiple-choice

Additional Information

No word problems/real-life situations will be used.
Bare computational problems will be used.
No remainders will be used.

Sample Multiple-Choice Items

1. $72 \div 8 = \square$

A	B	C	D
6	7	8	9
			*

2. $28 \div 4 = \square$

A	B	C	D
6	7	24	32
	*		

3. $35 \div 7 = \square$

A	B	C	D
4	5	6	7
	*		

4. $17 \div 1 = \square$

A	B	C	D
0	1	16	17
			*

5. $72 \div 4 = \square$

A	B	C	D
17	18	68	76
	*		

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Answer Key

Content Standard 4

Sample Multiple-Choice

1. **D**
2. **B**
3. **B**
4. **D**
5. **B**

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NUMBER AND OPERATIONS

Content Standard 5

Model equivalent fractions with concrete objects or pictorial representations.

Item Type

Multiple-choice

Additional Information

Graphics will be used.
Items will give fraction and graphic display.
Reasonable denominators will be used.

Sample Multiple-Choice Items

(continued on next page)

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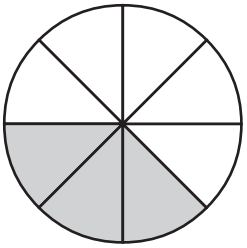
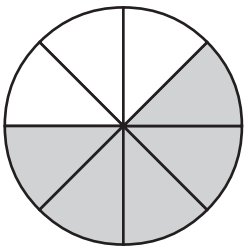
1. Which of the following is equivalent to the fraction below?



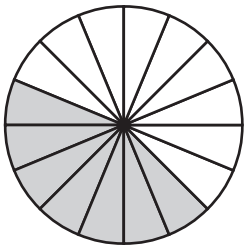
$\frac{3}{8}$

A



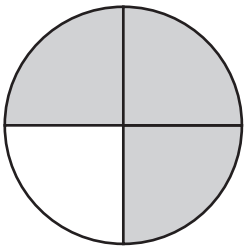
$\frac{5}{8}$

B



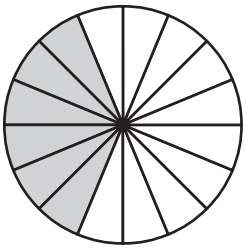
$\frac{7}{16}$

C



$\frac{3}{4}$

D *



$\frac{6}{16}$

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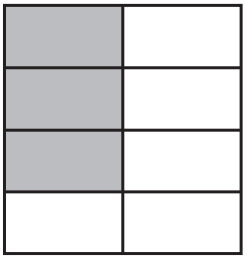
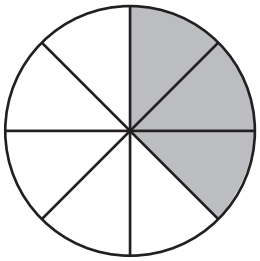
2. Which of the following is equivalent to the fraction $\frac{3}{8}$ shown below?

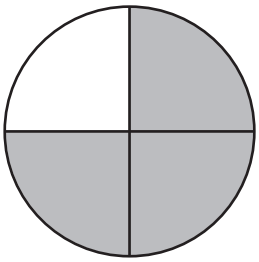


$\frac{3}{8}$

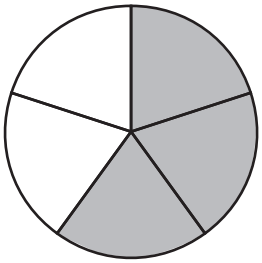
A *



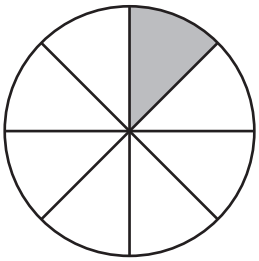
C



B



D



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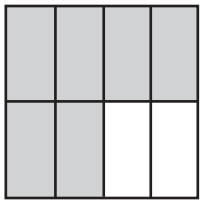
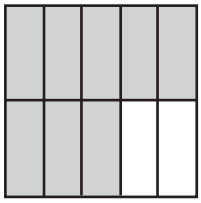
3. Which of the following is equivalent to the fraction below?

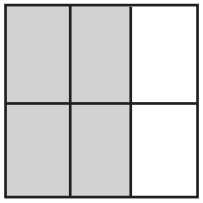


$\frac{6}{8}$



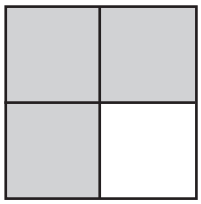
$\frac{8}{10}$

A



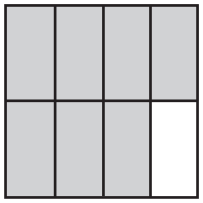
$\frac{4}{6}$

C



$\frac{3}{4}$

B *



$\frac{7}{8}$

D

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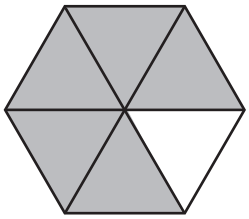
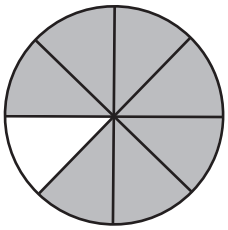
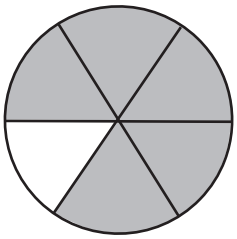
4. Which is equivalent to the fraction $\frac{5}{6}$ shown below?



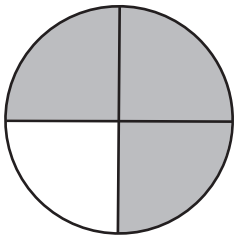
$\frac{5}{6}$



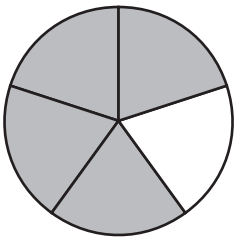
A



C *



B



D

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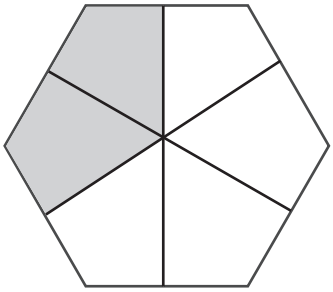
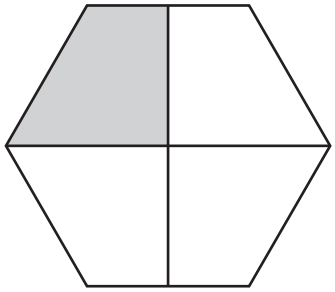
5. Which of the following is equivalent to the fraction below?



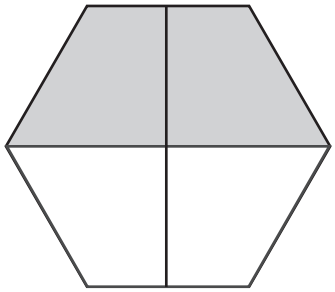
$\frac{2}{6}$

A



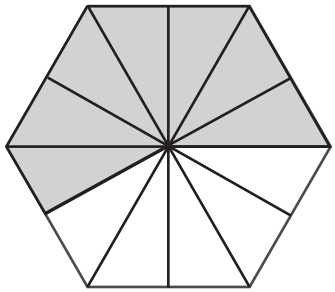
$\frac{1}{4}$

B



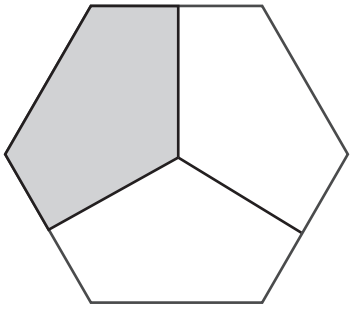
$\frac{2}{4}$

C



$\frac{7}{12}$

D *



$\frac{1}{3}$

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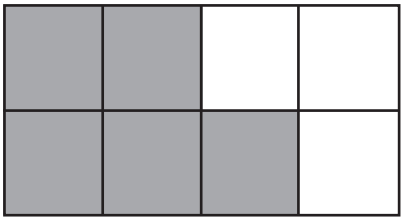
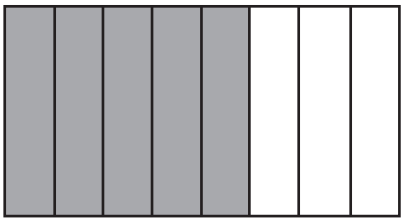
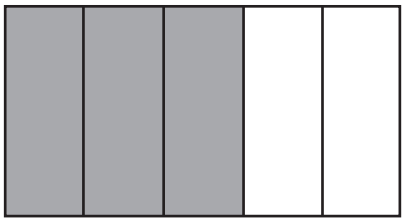
6. Which of the following is equivalent to the fraction $\frac{5}{8}$ shown below?



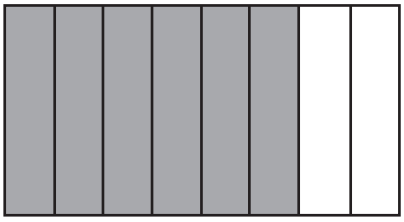
$\frac{5}{8}$



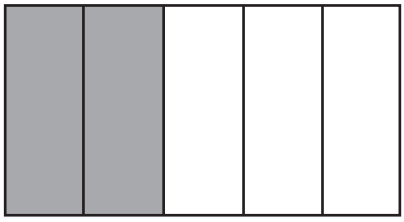
A *



C



B



D

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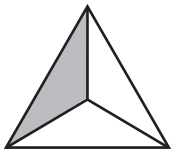
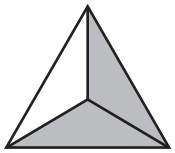
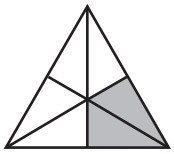
7. Which two of the following fractions are equivalent?



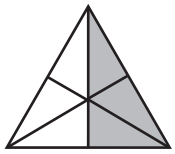
$\frac{1}{3}$



$\frac{2}{3}$



$\frac{2}{6}$



$\frac{3}{6}$

A $\frac{1}{3}$ and $\frac{2}{6}$ *

B $\frac{1}{3}$ and $\frac{3}{6}$

C $\frac{2}{3}$ and $\frac{2}{6}$

D $\frac{2}{3}$ and $\frac{3}{6}$

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Answer Key

Content Standard 5

Sample Multiple-Choice

1. **D**
2. **A**
3. **B**
4. **C**
5. **D**
6. **A**
7. **A**

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NUMBER AND OPERATIONS

Content Standard 6

Use coins to make change up to $1.00.

Item Type

Multiple-choice
Open-ended

Additional Information

Word problems/real-life situations will be used.
Graphics may be used.

Sample Multiple-Choice Items

(continued on next page)

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1. Suki has exactly $1 in coins in her pocket.

   Which group of coins could Suki have in her pocket?

A

B *

C

D

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2. Bella spent a total of $0.82 on a toy for her puppy. She paid with a 1-dollar bill.

   Which coins should Bella have received in change?

A 1 dime, 3 pennies
B 1 nickel, 3 pennies
C 1 dime, 1 nickel, 3 pennies *
D 1 quarter, 1 dime, 3 pennies

3. Jasmine used $0.75 to buy a toy car. The car cost $0.62, including tax.

   Which group of coins shows the amount of change Jasmine should have received?

A

B

C *

D

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4. Jonathon has 64 cents.

   Which group of coins shows how much <u>more</u> money Jonathon would need to have exactly $1?

A

B *

C

D

5. Phil spent a total of $0.39 on a pen. He paid with a 1-dollar bill.

   Which group of coins shows the amount of change Phil should have received?

A

B

C

D *

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Sample Open-Ended Items

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

1. Clarence had 85 cents when he went to the post office. He bought one stamp that cost 37 cents. There was no tax.

   a. How much money should Clarence have left?

   b. Using words or pictures, show two different groups of coins that show the amount of money Clarence has left.

Show all your work or explain your answer for each part in the space provided in the answer document.

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

2. Claudia needs $1.00 to buy bus fare. She has the coins shown below.

   a. How much more money does Claudia need to buy bus fare?

   b. Using words or pictures, show two different groups of coins that each equal the amount of money Claudia still needs.

Show all your work or explain your answer for each part in the space provided in the answer document.

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You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

3. Christopher bought an orange that costs $0.52. There was no tax. He gave the salesperson $0.75 for the orange.

   a. How much change should Christopher have received?

   b. Using words or pictures, show two different groups of coins that Christopher could have received as his change.

Show all your work or explain your answer for each part in the space provided in the answer document.

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

4. Sherry used $1.00 to buy gum. The gum costs $0.56, including tax.

   a. How much change should Sherry have received from her gum purchase?

   b. Using words or pictures, show two different groups of coins that Sherry could have received as change.

Show all your work or explain your answer for each part in the space provided in the answer document.

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You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

5. Beth bought a gum ball and a piece of taffy for a total of $0.78, including tax. She paid for the items with a 1-dollar bill.

   a. How much change should Beth have received?

   b. Using words or pictures, show two different groups of coins that Beth could have received as her change.

Show all your work or explain your answer for each part in the space provided in the answer document.

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Answer Key

Content Standard 6

Sample Multiple-Choice

1. **B**
2. **C**
3. **C**
4. **B**
5. **D**

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Sample Open-Ended

1. Sample Response(s):

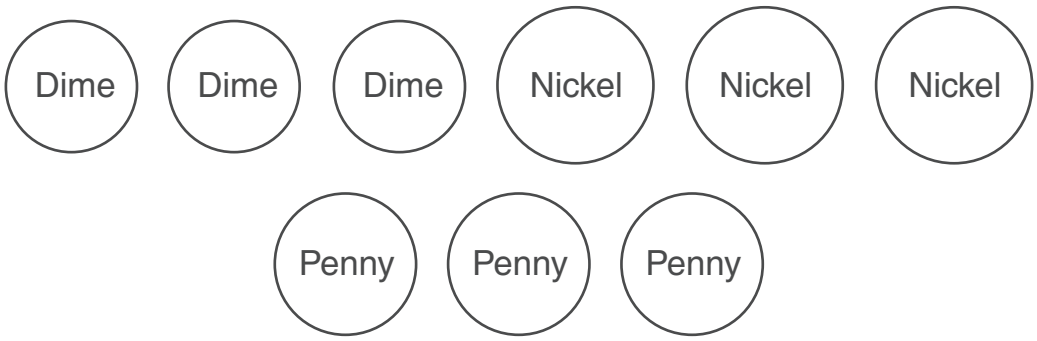
a. $0.85 – $0.37 = $0.48

OR

Equivalent

b. Possible groups of coins that Clarence could have received back as change include

OR



OR

9 nickels, 3 pennies

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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2. Sample Response(s):

a. $1.00 – $0.68 = $0.32

OR

Equivalent

b. Possible groups of coins that Claudia still needs include
1 quarter, 1 nickel, 2 pennies

OR

3 dimes, 2 pennies

OR

6 nickels, 2 pennies

OR

Equivalent (e.g., pictures of coins: "5¢" or "nickel" inside a circle)

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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3. Sample Response(s):

a. $0.75 − $0.52 = $0.23

OR

Equivalent

b. Possible groups of coins that Christopher could have received back as change include

2 dimes, 3 pennies

OR

1 dime, 2 nickels, 3 pennies

OR

4 nickels, 3 pennies

OR

Equivalent (e.g., pictures of coins: "5¢" or "nickel" inside a circle)

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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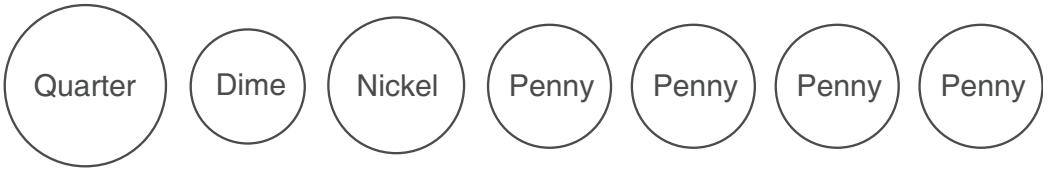
4. Sample Response(s):

a. $1.00 – $0.56 = $0.44

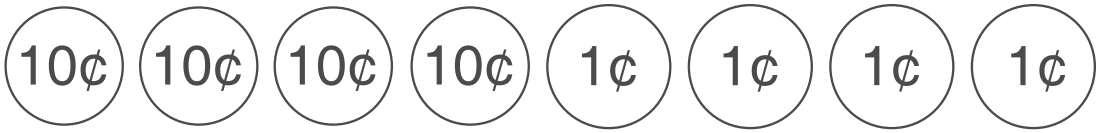
OR

Equivalent

b. Possible groups of coins that Sherry could have received back as change include



OR



OR

8 nickels, 4 pennies

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR One correct logic and all answers are correct.
1	One or more answers to problems are correct without logic. OR One logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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5. Sample Response(s):

a. $1.00 − $0.78 = $0.22

OR

Equivalent

b. Possible groups of coins that Beth could have received back as change include

2 dimes, 2 pennies

OR

4 nickels, 2 pennies

OR

22 pennies

OR

Equivalent (e.g., pictures of coins: "5¢" or "nickel" inside a circle)

Score Point	Response Attributes
3	All is correct.
2	Two logics are correct. OR One logic and all answers are correct.
1	One or more answers to problems are correct. OR Any one logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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ALGEBRA

Content Standard 7

Complete a given numeric or geometric pattern.

Item Type

Multiple-choice
Open-ended

Additional Information

Word problems/real-life situations may be used.
Tables and charts may be used.
Graphics may be used.

Sample Multiple-Choice Items

(continued on next page)

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The table below shows the cost of different numbers of books at a bookstore.

Bookstore

Number of Books	Total Cost (in dollars)
3	9
6	18
9	?
12	36
15	45

1. What will be the total cost of 9 books at this bookstore?

A $19
B $21
C $27 *
D $35

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2. Jason is using the same subtraction rule to find each number in the pattern below.

99, 83, 67, _____ , 35

What number is missing in the pattern?

A 49
B 51 *
C 53
D 57

3. Dorie drew the pattern shown below.

Which set shows the missing shapes in the correct order?

A

B

C

D *

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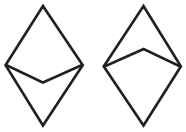
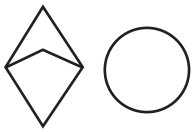
4. Phong put stickers on his wall in the pattern shown below.

Which set shows the missing stickers in the correct order?

A

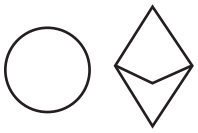


B *



C

D



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Sample Open-Ended Items

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

1. Kathy saw the pattern of shapes shown below.

If the pattern continues:

a. Draw or describe the next two shapes in the pattern.

b. When there are 20 shapes in all, how many s will be in the pattern?

c. When there are 7 s, what should be the total number of shapes in the pattern?

Show all your work or explain your answer for each part in the space provided in the answer document.

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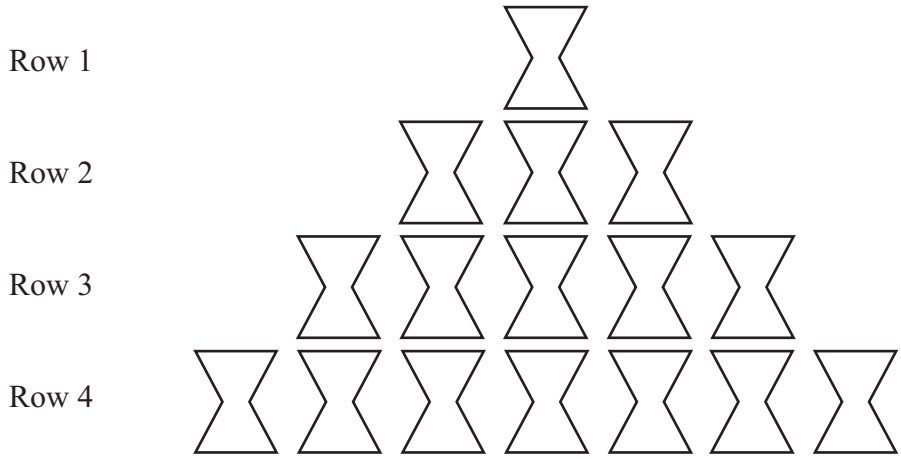
You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

2. Lily put stickers on her wall in a pattern as shown below.



If the pattern continues:

a. How many stickers should be in row 5?

b. Which row should have 19 stickers in it?

c. Explain why there cannot be a row with exactly 14 stickers in it?

Show all your work or explain your answer for each part in the space provided in the answer document.

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Answer Key

Content Standard 7

Sample Multiple-Choice

1. **C**
2. **B**
3. **D**
4. **B**

Sample Open-Ended

(continued on next page)

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1. Sample Response(s):

a. Circle, trapezoid because the pattern rule is triangle, triangle, circle, trapezoid, then it repeats.

OR

because the pattern rule is , then it repeats.

OR

Equivalent

b. $20 \div 4 \times 2 = 10$

OR

Students can also copy the pattern onto their answer document and show the pattern to 20 shapes.

OR

Equivalent

c. $7 \times 4 = 28$

OR

Students can also copy the pattern onto their answer document and show when there are 7 trapezoids.

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All of part a is correct and rule has been stated. OR All answers are correct. OR Two logics and two or more answers are correct.
1	One to three answers to problems are correct. OR Any one logic is correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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2. Sample Response(s):

a. Row 5

So, 9.

AND

Start with 1 and count by 2s (1, 3, 5, 7, 9)

OR

Equivalent

b.

#	1	3	5	7	9	11	13	15	17	19
row	1	2	3	4	5	6	7	8	9	10

So, 10th row.

OR

Equivalent

c. Each row has an odd number (of stickers) and 14 is not an odd number.

OR

Equivalent

Score Point	Response Attributes
3	All is correct.
2	All logics are correct. OR Two correct logics and correct answers for one or more problems. OR Pattern rule and all of part c is correct.
1	One or two answers to problems are correct. OR One logic is correct. OR One logic or one or more answers are correct.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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GEOMETRY

Content Standard 8

Identify geometric representations for points, lines, perpendicular lines, parallel lines, angles, and rays.

Item Type

Multiple-choice

Additional Information

Word problems/real-life situations may be used.
Graphics will be used.

Sample Multiple-Choice Items

1. Which best describes the figure shown below?

A Ray
B Line
C Point *
D Angle

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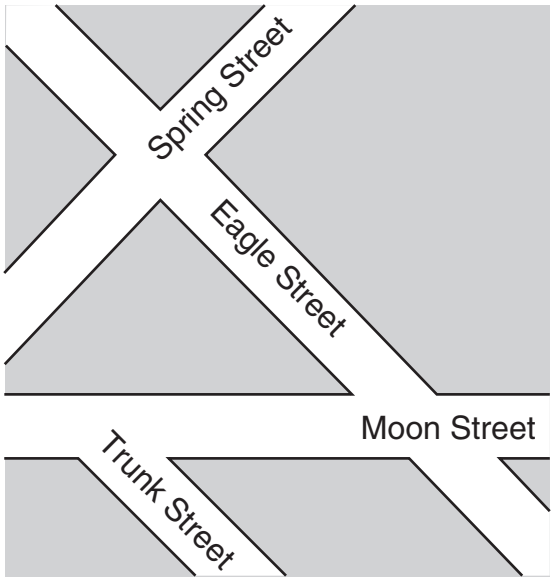
Look at the map below.



2. Which two streets are most likely parallel?

A Spring Street and Moon Street

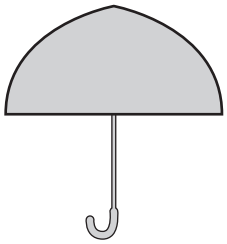
B Eagle Street and Moon Street

C Trunk Street and Spring Street

D Trunk Street and Eagle Street *

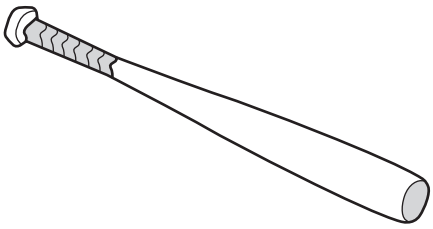
3. Darryl drew a picture that had some perpendicular line segments. Which could be Darryl's picture?

A *

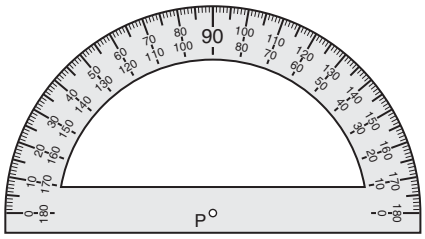


B

C



D



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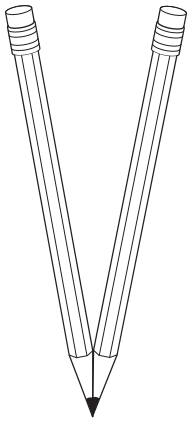
Brian placed two pencils on his desk, as shown.



4. Which best describes the geometric figure made by Brian's pencils?

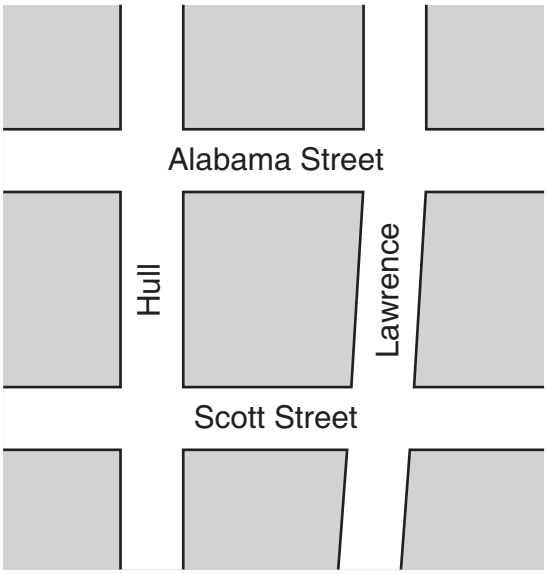
A Ray

B Line

C Point

D Angle *

Look at the map below.



5. Which two streets below are most likely perpendicular?

A Scott Street and Hull *

B Scott Street and Alabama Street

C Lawrence and Hull

D Lawrence and Scott Street

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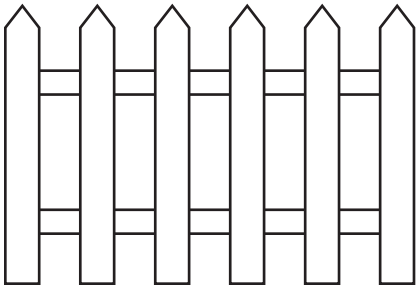
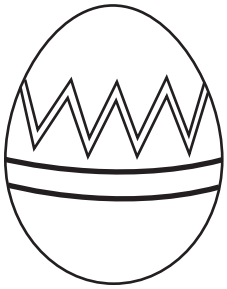
6. Which <u>best</u> shows an example of both perpendicular and parallel line segments?

A

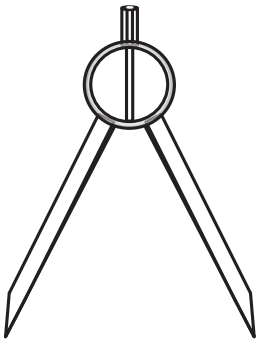
B *



C



D



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Answer Key

Content Standard 8

Sample Multiple-Choice

1. **C**
2. **D**
3. **A**
4. **D**
5. **A**
6. **B**

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GEOMETRY

Content Standard 9

Specify locations on a coordinate grid by using horizontal and vertical movements.

Item Type

Multiple-choice
Open-ended

Additional Information

Word problems/real-life situations may be used.
Graphics will be used.
Direction must be specified using up, down, left, right or north, south, east, west.

Sample Multiple-Choice Items

(continued on next page)

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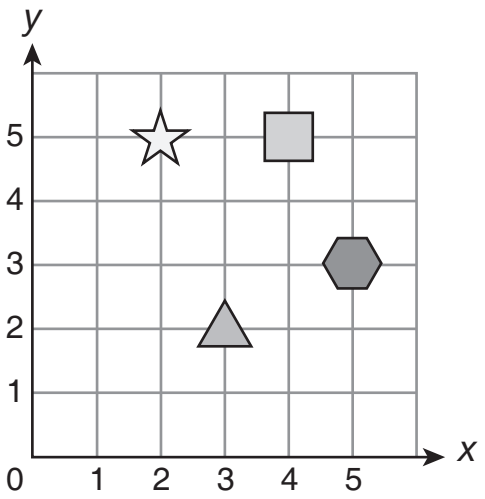
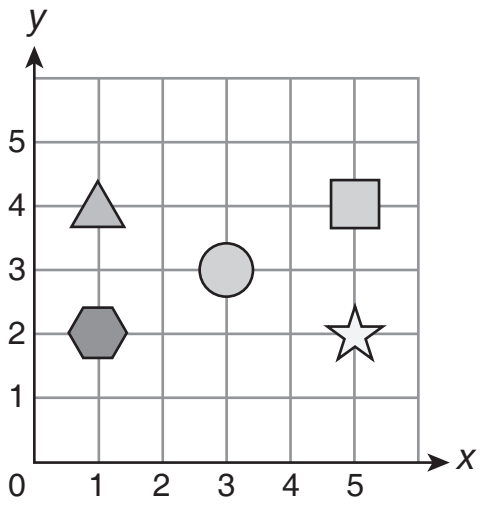
On the grid below, Travis moved from the triangle, along the grid lines, 3 spaces up, and then 1 space to the right.



1. On which figure did Travis land?

A **B** * **C** **D**

On the grid below, Debbie moved from the , along the grid lines, 2 spaces to the left, and 1 space down.



2. On which figure did Debbie land?

A **B** **C** * **D**

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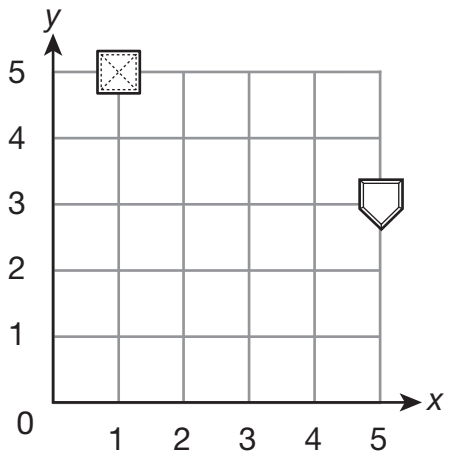
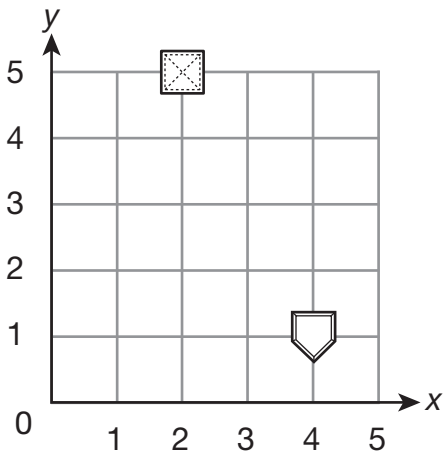
3. Freddy moved from the ⊠, along the gridlines, 4 spaces to the right and 2 spaces down to get to the ⬠.

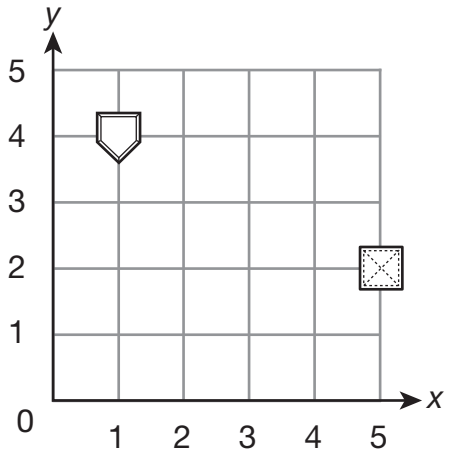
   Which could be the coordinate grid Freddy used?



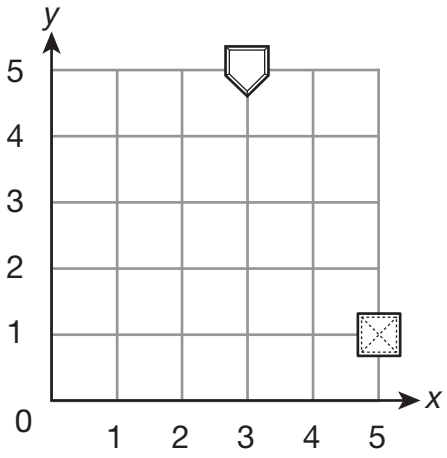
A *



C



B



D

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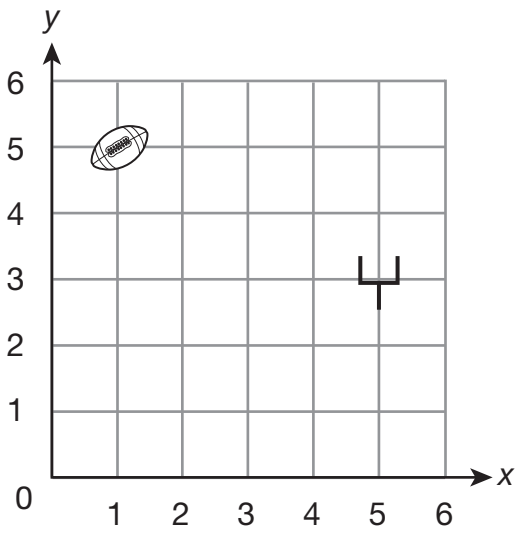
4. Jason needs to move from the to the on the coordinate grid shown below.



Which way can Jason move along the grid lines from the to the ?

A 2 spaces up and 4 spaces to the right

B 4 spaces up and 2 spaces to the right

C 2 spaces down and 4 spaces to the right *

D 4 spaces down and 2 spaces to the right

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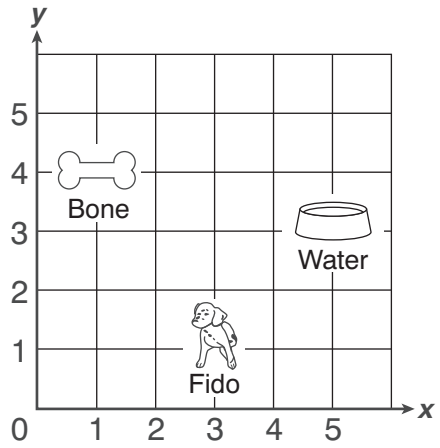
Sample Open-Ended Items

You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

1. On the grid below, Fido wants to drink from his water dish and get his bone.



   a. Describe 1 way Fido can walk along the grid lines to go to the water dish.

   b. Describe 1 way Fido can walk along the grid lines to go from the water dish to get his bone.

   c. Describe a different way Fido can walk along the grid lines to go from the water dish to get his bone.

Show all your work or explain your answer for each part in the space provided in the answer document.

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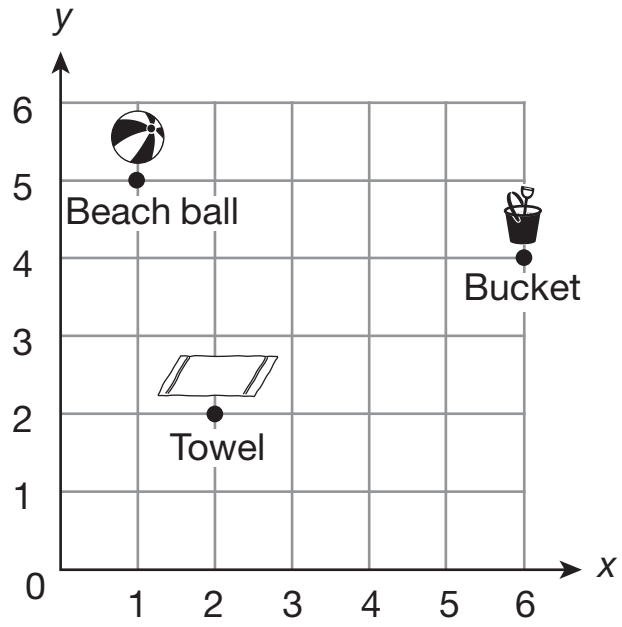
You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

2. The coordinate grid below shows the location of Jason's beach ball, his bucket, and his towel on the beach.



a. Describe one way Jason can travel along the grid lines from his towel to the beach ball.

b. Describe two <u>different</u> ways Jason can travel along the grid lines from the beach ball to the bucket.

Show all your work or explain your answer <u>for</u> <u>each</u> <u>part</u> in the space provided in the answer document.

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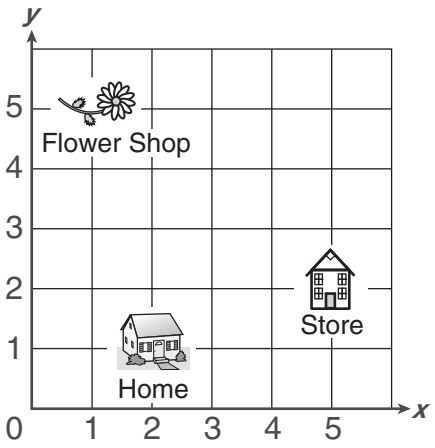
You will need to show all your work or explain your answer for this problem. You may use drawings, words, or numbers. Your answer should be written so that another person could read and understand it.

3. On the grid below, Ed's mom decided to leave the store and stop at the flower shop before going home.



a. Describe 1 way Ed's mom can travel along the grid lines from the store to the flower shop.

b. Describe 1 way Ed's mom can travel along the grid lines to go from the flower shop to her home.

Show all your work or explain your answer for each part in the space provided in the answer document.

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Answer Key

Content Standard 9

Sample Multiple-Choice

1. **B**
2. **C**
3. **A**
4. **C**

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Sample Open-Ended

1. Sample Response(s):

a. Fido can walk 2 units to the right and 2 units up to get to the water dish.

OR

Students can also copy the grid on their answer document and show the directions with arrows.

OR

Equivalent (e.g., 2 units east and 2 units north)

b. Fido can walk 4 units to the left and 1 unit up to get to his bone.

OR

Equivalent (student response for part b and part c are interchangeable, but they cannot be the same)

c. A different way Fido can walk from the water dish to get his bone is 1 unit up and 4 units to the left.

OR

Students can also copy the grid on their answer document and show the directions with arrows.

OR

Equivalent (e.g., 2 units to the left, 1 unit up, then 2 more units to the left)

Score Point	Response Attributes
3	All is correct.
2	Two logics on grid are correct.
1	One logic on grid is correct. OR One partial correct logic in the right direction is shown.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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2. Sample Response(s):

a. Jason can travel 1 unit to the left and 3 units up to get from his towel to his beach ball.

OR

Students can also copy the grid on their answer document and show the directions with arrows.

OR

Equivalent (e.g., 1 unit west and 3 units north)

b. Jason can travel 5 units to the right and 1 unit down to get from the beach ball to the bucket.

AND

A different way Jason can travel from the beach ball to the bucket is 1 unit down and 5 units to the right.

OR

Students can also copy the grid on their answer document and show the directions with arrows.

OR

Equivalent (e.g., 2 units to the right, 1 unit down, then 3 more units to the right)

Score Point	Response Attributes
3	All is correct.
2	Two logics on grid are correct.
1	One logic on grid is correct. OR One partial correct logic in the right direction is shown.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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3. Sample Response(s):

a. Ed's mom can travel 3 units up and 4 units to the left to get from the store to the flower shop.

OR

Students can also copy the grid on their answer document and show the direction with arrows.

OR

Equivalent (e.g., 3 units north and 4 units west)

b. Ed's mom can travel 1 unit to the right and 4 units down to get from the flower shop to home.

OR

Students can also copy the grid on their answer document and show the direction with arrows.

OR

Equivalent (e.g., 1 unit east and 4 units south)

Score Point	Response Attributes
3	All is correct.
2	Two logics on grid are correct.
1	One logic on grid is correct. OR One partial correct logic in the right direction is shown.
0	None correct. (Also, blanks, rewrites problem, foreign language, illegible, refusals, off-task, etc., scored as invalid.)

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MEASUREMENT

Content Standard 10

Measure length in metric units.

Item Type

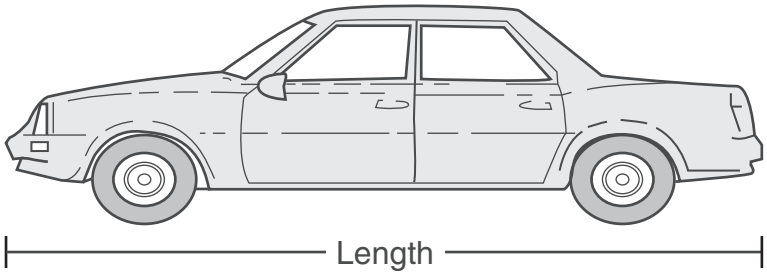
Multiple-choice

Additional Information

Word problems/real-life situations may be used.
Length will be measured to the nearer centimeter.

Sample Multiple-Choice Items

Use your centimeter ruler to measure the length of the car pictured below.



1. To the nearer centimeter, what is the length of the car?

8 cm	9 cm	10 cm	11 cm
A	**B**	**C** *	**D**

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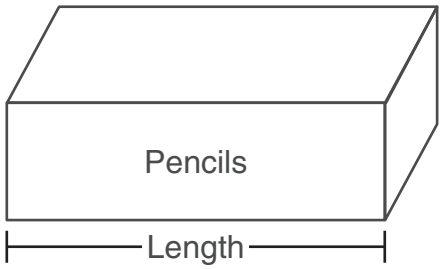
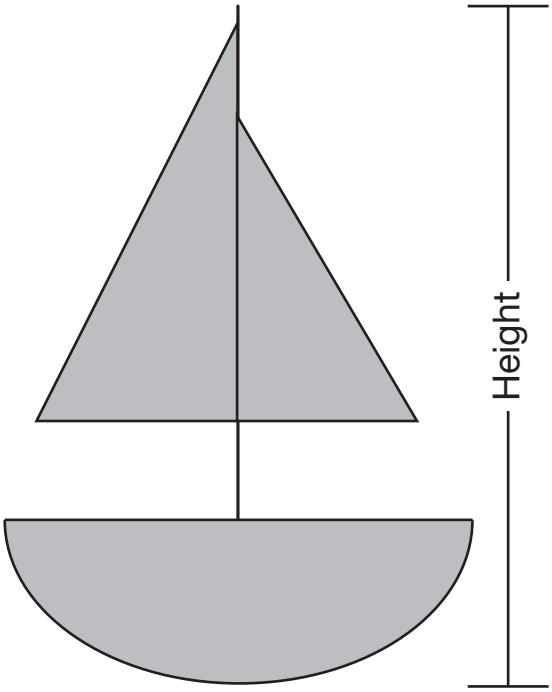
Use your centimeter ruler to measure the length of the pencil box pictured below.



2. To the nearer centimeter, what is the length of the pencil box?

A 5 cm *
B 6 cm
C 7 cm
D 8 cm

Use your centimeter ruler to measure the height of the sailboat shown below.



3. To the nearer centimeter, what is the height of the sailboat?

A 8 cm
B 9 cm *
C 10 cm
D 11 cm

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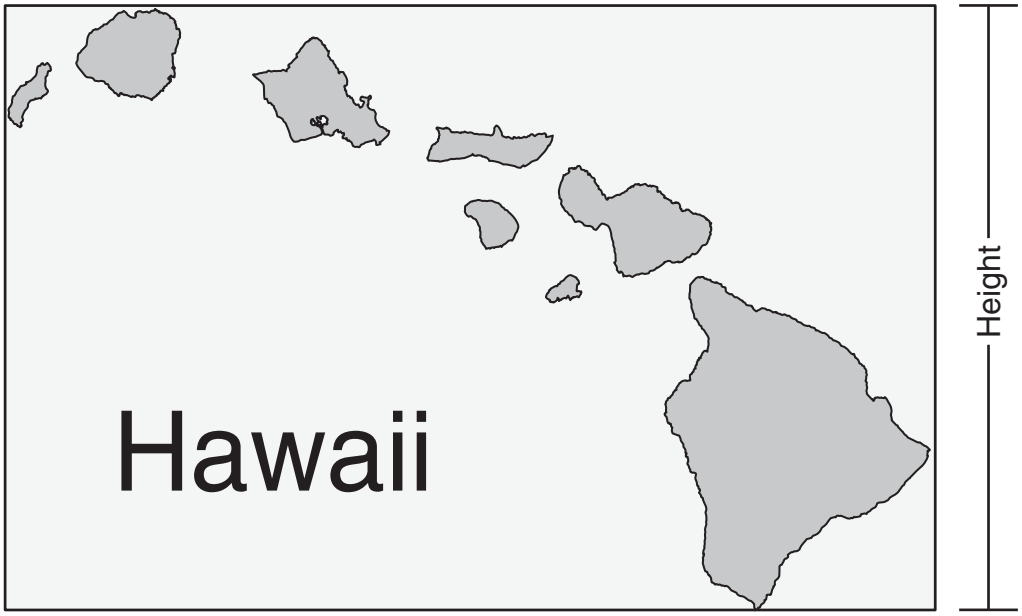
Use your centimeter ruler to measure the height of the map pictured below.



4. To the nearer centimeter, what is the height of the map?

6 cm	8 cm	12 cm	13 cm
A	**B** *	**C**	**D**

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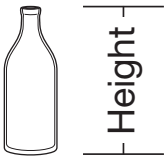
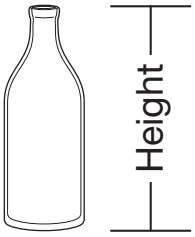
5. Using your centimeter ruler which bottle is nearer to 5 centimeters?

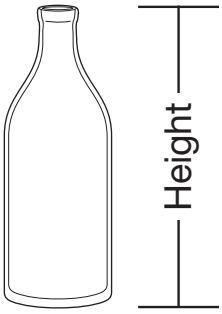
A



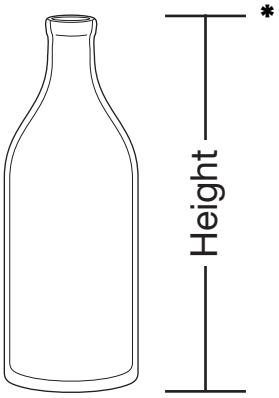
B



C



D *



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Answer Key

Content Standard 10

Sample Multiple-Choice

1. **C**
2. **A**
3. **B**
4. **B**
5. **D**

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MEASUREMENT

Content Standard 11

Determine elapsed time to the day with calendars and to the hour with a clock.

Item Type

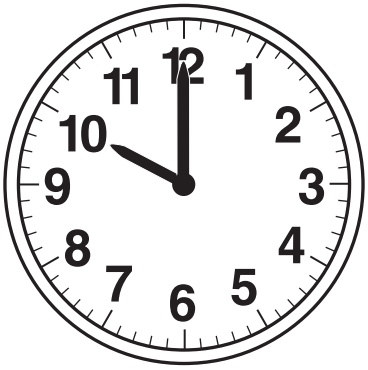
Multiple-choice

Additional Information

Word problems/real-life situations may be used.
Graphics will be used.
Analog and digital clocks will be used.

Sample Multiple-Choice Items

The clock shows the time Mr. Lind left on a trip to Montgomery Wednesday morning. He arrived at 2:00 P.M. on Wednesday afternoon.



1. How many total hours did Mr. Lind's trip take?

A 10 hours
B 7 hours
C 4 hours *
D 3 hours

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Rhonda's meeting began at 10:00 A.M. The clock shows the time the meeting ended that same day.

Time Ended

2. How many total hours was she at the meeting?

A	B *	C	D
1	3	10	11

3. Victor sent a package to a friend on July 19 at 3:00 P.M. It arrived at his friend's house 6 days later at 3:00 P.M.

July

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

What was the date the package arrived at his friend's house?

A July 23
B July 24
C July 25 *
D July 26

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A ship left Miami, Florida, on February 2 and returned 2 weeks later.

FEBRUARY

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

4. What was the date when the ship returned to Miami?

A February 12
B February 14
C February 16 *
D February 18

Josie arrived at her aunt's house at noon on October 16. She left her aunt's house at noon on October 27.

OCTOBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24/31	25	26	27	28	29	30

5. How many full (24-hour) days did Josie stay with her aunt?

A 16 days
B 13 days
C 12 days
D 11 days *

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Answer Key

Content Standard 11

Sample Multiple-Choice

1. **C**
2. **B**
3. **C**
4. **C**
5. **D**

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DATA ANALYSIS AND PROBABILITY

Content Standard 12

Recognize data as either categorical or numerical.

Item Type

Multiple-choice

Additional Information

The terms categorical and numerical will not be used.

Sample Multiple-Choice Items

1. Milo should answer three of the following questions by writing a word or words.

   Which question should he answer by writing a numeral?

A How many years have you worked? *

B What job do you want?

C What is the name of your hometown?

D How are you going to get to work?

2. Coach Brown should answer three of the following questions by writing a word or words.

   Which question should he answer by writing a numeral?

A What kind of juice do you drink?

B What are your parents' names?

C What time do you go to bed? *

D What is your favorite snack?

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3. Tamara should answer three of the following questions by writing a word or words.

   Which question should she answer by writing a numeral?

A What are the names of your two best friends?

B What did you eat for lunch today?

C What are your favorite subjects in school?

D What was your team's final score? *

4. Stefanie should answer three of the following questions by writing a word or words.

   Which question should she answer by writing a numeral?

A What is the age of your brother? *

B What is your mom's name?

C What kind of pet do you have at home?

D What is your favorite cartoon?

5. Mark asked a question that could only have numbers for answers.

   Which set of data only has numbers?

A Buildings

B Foods

C Names

D Speeds *

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6. Chelsea should answer three of the following questions by writing a numeral.

   Which question should she answer by writing a word or words?

A How many minutes did you read last night?

B What coat should I wear? *

C What time does school end?

D How many desks are in your classroom?

8. Dennis should answer three of the following questions by writing a numeral.

   Which question should he answer by writing a word or words?

A How many hours did you play ball?

B What is the length of the boat?

C How many days are there until my birthday?

D What kind of candy do you like? *

7. Nick should answer three of the following questions by writing a numeral.

   Which question should he answer by writing a word or words?

A How many days of school did you miss this year?

B What time do you wake up in the mornings?

C What color is your notebook? *

D How many hours are you in school each day?

9. Justin should answer three of the following questions by writing a numeral.

   Which question should he answer by writing a word or words?

A How many inches tall is the giraffe?

B What color is the leopard? *

C How many pounds does the elephant weigh?

D What time did you leave the zoo?

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Answer Key

Content Standard 12

Sample Multiple-Choice

1. **A**
2. **C**
3. **D**
4. **A**
5. **D**
6. **B**
7. **C**
8. **D**
9. **B**

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DATA ANALYSIS AND PROBABILITY

Content Standard 13

Determine the likelihood of different outcomes in a simple experiment.

Item Type

Multiple-choice

Additional Information

Word problems/real-life situations may be used.
Tables and charts may be used.
Graphics may be used.
In determining the likelihood, *most likely*, *least likely*, *certain*, *possible*, and *impossible* may be used.

Sample Multiple-Choice Items

1. Susie has 36 stickers in a bag. There are 8 red, 6 blue, 12 green, and 10 yellow stickers. All the stickers are the same size and shape. There are no other stickers in the bag. Susie will pick 1 sticker from the bag without looking.

   Which color sticker is Susie least likely to pick from the bag?

A Blue *
B Green
C Red
D Yellow

2. Jenny is grabbing a marble from a bag that has 8 green marbles, 3 blue marbles, and no other marbles.

   What is the likelihood that Jenny will grab a red marble?

A Certain
B Least likely
C Most likely
D Impossible *

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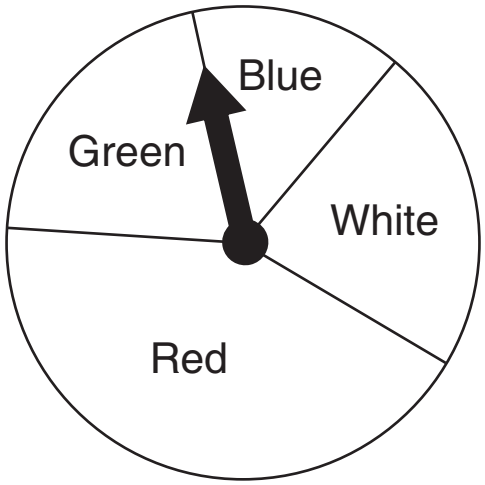
The arrow on the spinner below is spun once.



3. On which color space is the arrow <u>most</u> <u>likely</u> to land?

A Blue
B White
C Green
D Red *

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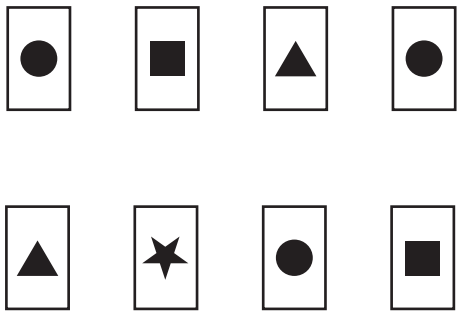
The following picture cards were on Randy's desk. All the picture cards were the same size and shape. Randy picked 1 picture card without looking.



4. Which picture card did Randy most likely pick?

A **B** **C** * **D**

5. Brett is picking socks from a drawer. There are 4 white socks, 6 brown socks, and 1 black sock in the drawer. All the socks are the same size and shape. Brett reaches into the drawer and grabs 2 socks without looking.

   Which 2 socks are impossible for Brett to grab?

A 2 brown socks
B 2 black socks *
C 1 brown and 1 white sock
D 1 black and 1 white sock

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Answer Key

Content Standard 13

Sample Multiple-Choice

1. **A**
2. **D**
3. **D**
4. **C**
5. **B**

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SAMPLE RESPONSE FORMAT

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SAMPLE RESPONSE: MULTIPLE-CHOICE

Page _____

1	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Page _____

6	Ⓐ	Ⓑ	Ⓒ	Ⓓ
7	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Page _____

9	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10	Ⓐ	Ⓑ	Ⓒ	Ⓓ

SAMPLE

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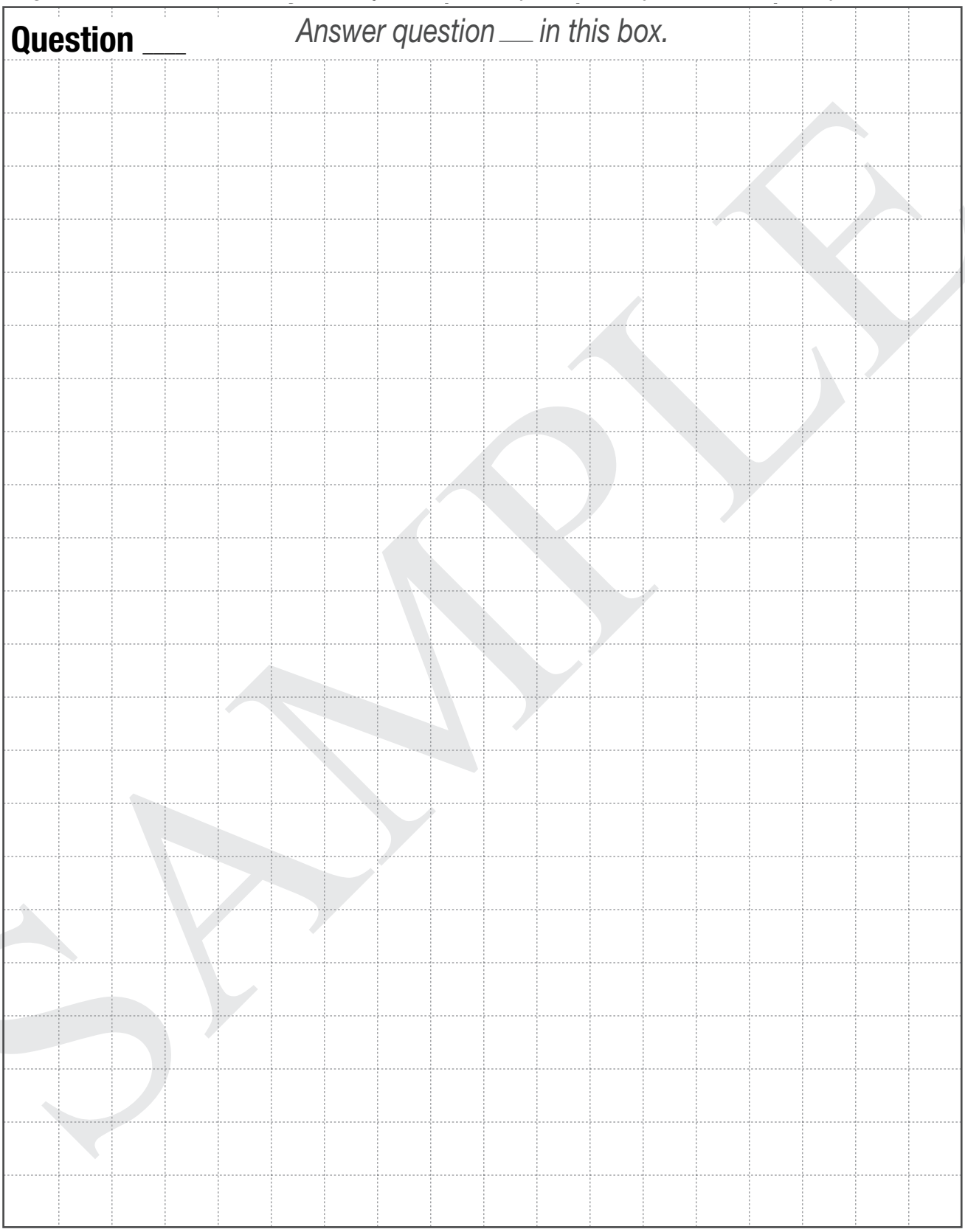
SAMPLE RESPONSE: OPEN-ENDED

Page ____ Be sure to leave room in your answer space for all parts of this test question.

Question ___ *Answer question ___ in this box.*



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