GLENCOE MATHEMATICS

Grade 7

Mastering the Georgia Criterion Referenced Competency Test (CRCT)

Diagnose – Prescribe – Practice Workbook

Includes:

- **Georgia Performance Standards for Grade 7**
- **Diagnostic Test**
- **Practice for Each Grade 7 Georgia Performance Standard**
- **Sample Test**
- **Countdown to CRCT**
- **Student Recording Chart**

Mc Graw Hill

Glencoe

Contents

Road Map to CRCT Success

Checkpoint Ahead

### 1 Diagnose Strengths and Weaknesses

- Take the **Diagnostic Test** on pages 1–10. This test will help you identify any weaknesses you may have as you prepare to take the test.
- Complete the **Student Recording Chart** found on page v, using an ✗ for questions that you answered incorrectly.

Reteaching & Practice

Mastery

2 Prescribe A Plan for Improvement

- Use your Student Recording Chart to identify the standards that you still need to work on. If you missed one or two of the questions for a particular standard, you could probably use extra practice with that standard.
- The Student Recording Chart lists practice pages for each standard. Complete the corresponding practice pages in your workbook.

3 Practice Test-Taking Skills

- After you have completed the practice pages, take the **Sample Test** found on pages 43–52 of this workbook.
- The Sample Test gives you an opportunity to practice and improve your test-taking skills.
- The **Countdown to CRCT** on pages 53–70 of this workbook can be used in the weeks before the test. You will find practice problems similar to those on the test.
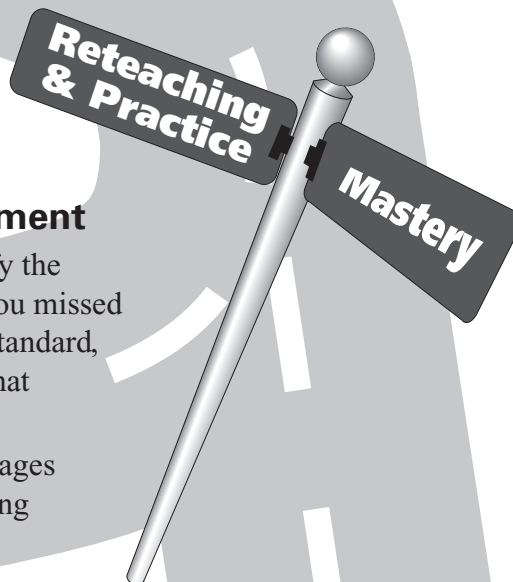
Welcome to **Success!**

Student Recording Chart

Directions Mark an × next to each question from the Diagnostic Test that you answered *incorrectly*. If there is an × marked for a Standard, write **Yes** in the **Need Practice?** box. Then complete the practice pages for that Standard.

Standard	M7N1.a	M7N1.b	M7N1.c	M7N1.d	M7G1.a	M7G1.b	M7G2.a	M7G2.b
Test Questions	34☐ 37☐ 39☐	13☐ 48☐ 57☐	15☐ 24☐ 25☐	31☐ 36☐ 40☐	28☐	54☐	2☐ 4☐	43☐ 46☐
Need Practice?								
Practice Pages	11	12	13	14	15	16	17–18	19

Standard	M7G3.a	M7G3.b	M7G3.c	M7G4.a	M7G4.b	M7A1.a	M7A1.b
Test Questions	45☐ 51☐	3☐ 52☐ 58☐	30☐ 59☐	60☐	17☐ 23☐	19☐ 27☐ 44☐	10☐ 42☐
Need Practice?							
Practice Pages	20	21	22	23	24	25	26

Standard	M7A1.c	M7A2.a	M7A2.b	M7A3.a	M7A3.b	M7A3.c	M7A3.d
Test Questions	20☐ 35☐	9☐ 22☐ 41☐	8☐ 14☐ 50☐	5☐ 49☐	29☐ 32☐ 55☐	1☐	18☐
Need Practice?							
Practice Pages	27	28	29	30	31	32	33

Standard	M7D1.a	M7D1.b	M7D1.c	M7D1.d	M7D1.e	M7D1.f	M7D1.g
Test Questions	47☐	11☐ 53☐	12☐ 16☐ 21☐	6☐ 38☐	7☐	26☐ 56☐	33☐
Need Practice?							
Practice Pages	34	35–36	37	38	39	40	41

Georgia Performance Standards, Grade 7 Mathematics

Strands and Performance Standards

NUMBERS AND OPERATIONS

Students will further develop their understanding of the concept of rational numbers and apply them to real world situations.

M7N1 Students will understand the meaning of positive and negative rational numbers and use them in computation.
  a. Find the absolute value of a number and understand it as the distance from zero on a number line.
  b. Compare and order rational numbers, including repeating decimals.
  c. Add, subtract, multiply, and divide positive and negative rational numbers.
  d. Solve problems using rational numbers.

GEOMETRY

Students will further develop and apply their understanding of plane and solid geometric figures through the use of constructions and transformations. Students will explore the properties of similarity and further develop their understanding of 3-dimensional figures.

M7G1 Students will construct plane figures that meet given conditions.
  a. Perform basic constructions using both compass and straight edge, and appropriate technology. Constructions should include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.
  b. Recognize that many constructions are based on the creation of congruent triangles.

M7G2 Students will demonstrate understanding of transformations.
  a. Demonstrate understanding of translations, dilations, rotations, reflections, and relate symmetry to appropriate transformations.
  b. Given a figure in the coordinate plane, determine the coordinates resulting from a translation, dilation, rotation, or reflection.

M7G3 Students will use the properties of similarity and apply these concepts to geometric figures.
  a. Understand the meaning of similarity, visually compare geometric figures for similarity, and describe similarities by listing corresponding parts.
  b. Understand the relationships among scale factors, length ratios, and area ratios between similar figures. Use scale factors, length ratios, and area ratios to determine side lengths and areas of similar geometric figures.
  c. Understand congruence of geometric figures as a special case of similarity: The figures have the same size and shape.

M7G4 Students will further develop their understanding of three-dimensional figures.
  a. Describe three-dimensional figures formed by translations and rotations of plane figures through space.
  b. Sketch, model, and describe cross-sections of cones, cylinders, pyramids, and prisms.

Strands and Performance Standards (continued)

ALGEBRA

Students will demonstrate an understanding of linear relations and fundamental algebraic concepts.

M7A1   Students will represent and evaluate quantities using algebraic expressions.
   a. Translate verbal phrases to algebraic expressions.
   b. Simplify and evaluate algebraic expressions, using commutative, associative, and distributive properties as appropriate.
   c. Add and subtract linear expressions.

M7A2   Students will understand and apply linear equations in one variable.
   a. Given a problem, define a variable, write an equation, solve the equation, and interpret the solution.
   b. Use the addition and multiplication properties of equality to solve one- and two-step linear equations.

M7A3   Students will understand relationships between two variables.
   a. Plot points on a coordinate plane.
   b. Represent, describe, and analyze relations from tables, graphs, and formulas.
   c. Describe how change in one variable affects the other variable.
   d. Describe patterns in the graphs of proportional relationships, both direct ($y = kx$) and inverse ($y = k/x$).

DATA ANALYSIS AND PROBABILITY

Students will demonstrate understanding of data analysis by posing questions, collecting data, analyzing the data using measures of central tendency and variation, and using the data to answer the questions posed. Students will understand the role of probability in sampling.

M7D1   Students will pose questions, collect data, represent and analyze the data, and interpret results.
   a. Formulate questions and collect data from a census of at least 30 objects and from samples of varying sizes.
   b Construct frequency distributions.
   c. Analyze data using measures of central tendency (mean, median, and mode), including recognition of outliers.
   d. Analyze data with respect to measures of variation (range, quartiles, interquartile range).
   e. Compare measures of central tendency and variation from samples to those from a census. Observe that sample statistics are more likely to approximate the population parameters as sample size increases.
   f. Analyze data using appropriate graphs, including pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots introduced earlier, and using box-and-whisker plots and scatter plots.
   g. Analyze and draw conclusions about data, including describing the relationship between two variables.

Test-Taking Tips

- Go to bed early the night before the test. You will think more clearly after a good night's rest.

- Read each problem carefully, and think about ways to solve the problem before you try to answer the question.

- Relax. Most people get nervous when taking a test. It's natural. Just do your best.

- Answer questions you are sure about first. If you do not know the answer to a question, skip it and go back to that question later.

- Think positively. Some problems may seem hard to you, but you may be able to figure out what to do if you read each question carefully.

- If no figure is provided, draw one. If a figure is furnished, mark it in any way that will help you solve the problem.

- When you have finished each problem, reread it to make sure that your answer is reasonable.

- Become familiar with a variety of formulas and when they should be used.

- Make sure that the number of the question on the answer sheet matches the number of the question on which you are working in your test booklet.

Mathematics Reference Sheet

Formulas

Area

Rectangle and Parallelogram	$A = b \times h$
Triangle	$A = \frac{1}{2} \times b \times h$
Circle	$A = \pi \times r^2$

Volume

Rectangular Prism	$V = l \times w \times h$
Cube	$V = s^3$
Cylinder	$V = \pi \times r^2 \times h$

Circumference

$$C = \pi \times d$$

$$\pi = 3.14$$

Diagnostic Test

Choose the best answer for each question.

1 The formula for the area of a circle is
$A = \pi r^2$. If the radius is halved, how
will the area change? **M7A3.c**
 A The area will stay the same.
 B The area will be halved too.
 C The area will be quartered.
 D The area will be doubled.

2 How many lines of symmetry does the
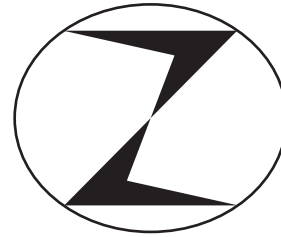star have? **M7G2.a**

 A none
 B one
 C three
 D six

3 Kevin's parents bought a package of
100 circular coasters for the family
room. If all of the coasters were stacked
on top of one another, what shape would
the coasters make? **M7G3.b**
 A cone
 B cylinder
 C cube
 D pyramid

4 The symbol for a new car company,
Zalona, is illustrated below. What
type(s) of symmetry does this symbol
have? **M7G2.a**

 A rotational symmetry only
 B line symmetry only
 C both rotational and line symmetry
 D translational symmetry only

5 In which quadrant is the point $(-4, 3)$
located? **M7A3.a**
 A I
 B II
 C III
 D IV

6 Billy conducted a survey of how many
siblings his classmates have. What is
the range of the data? **M7D1.d**

    0, 0, 1, 1, 1, 1, 2, 2, 3, 4, 7

 A 1
 B 2
 C 7
 D 11

Go on

Diagnostic Test (continued)

7 Will surveyed his homeroom of 20 students and found that 20% chose chocolate ice cream as their favorite, 40% chose cookies-and-cream, and 40% chose vanilla. Do these results represent all 1,200 students in Will's middle school? **M7D1.e**

A No; they didn't include strawberry ice cream.

B No; as the sample size increases, the results may change.

C Yes; all of the students in the school like the same ice cream.

D Yes; all of the students will select one of the three ice cream flavors.

8 Solve for x. **M7A2.b**

$$2x - 6 = 8$$

A $x = 1$

B $x = 4$

C $x = 7$

D $x = 12$

9 Kenny earned $200 mowing lawns over the course of two summers. He made $40 more the second summer than he did the first. How much money did Kenny earn the first summer he mowed lawns? **M7A2.a**
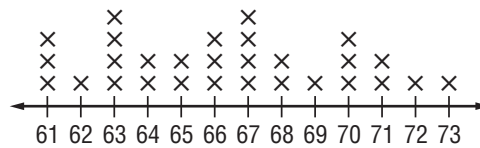
A $80

B $100

C $120

D $160

10 Simplify the expression. **M7A1.b**

$$4 \times 9 + 3(21 \div 3)$$

A 57

B 120

C 273

D 336

Use the frequency distribution below for Questions 11 and 12.

```
         ×           ×
  ×      ×     × ×         ×
  ×      × × × × × ×     × ×
  × × × × × × × × × × × × × ×
  ┼─┼─┼─┼─┼─┼─┼─┼─┼─┼─┼─┼─┼─
 61 62 63 64 65 66 67 68 69 70 71 72 73
```

11 How many times does 62 occur in this frequency distribution? **M7D1.b**

A 1 time

B 3 times

C 4 times

D 29 times

12 What is the median of this data set? **M7D1.c**

A 63

B 65

C 66

D 67

13 Joan is drawing and labeling a number line. Where should she place −9 in relation to +3? **M7N1.b**

A 6 units to the left

B 6 units to the right

C 12 units to the left

D 12 units to the right

Go on

Diagnostic Test (continued)

14 Peter has three dozen peaches. He will share them evenly among himself and three friends. How many peaches will each person get? **M7A2.b**

A 12

B 9

C 6

D 3

15 On one winter day, the temperature in Augusta fell 3 degrees each hour for 4 hours. Which represents the temperature change during the 4-hour period? **M7N1.c**

A $-12°$

B $-7°$

C $7°$

D $12°$

16 What is the mode of the following data set? **M7D1.c**

banana, strawberry, grape, watermelon strawberry, cherry, grape, strawberry

A banana

B grape

C strawberry

D watermelon

17 Belinda needs to wrap a gift box that is 16 inches long, 10 inches deep, and 3 inches high. How much wrapping paper does she need to cover the box? **M7G4.b**

A 29 in²

B 238 in²

C 476 in²

D 480 in²

18 A graph of two lines is shown below. Both lines are of the form $y = kx$. Which of these statements is TRUE about k? **M7A3.d**
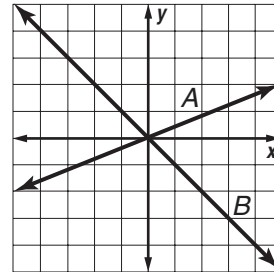
A k is negative for line A and for line B.

B k is negative for line A and positive for line B.

C k is positive for line A and for line B.

D k is positive for line A and negative for line B.

19 Hot dogs at the Georgia Dome can cost up to $6.75 each. Which of the following expressions can be used to determine the cost of h hot dogs? **M7A1.a**

A $6.75 + h$

B $6.75 - h$

C $6.75h$

D $h - 6.75$

20 Simplify. **M7A1.c**

$$3(2 + x) - 4x$$

A $6 - 9x$

B $6 - 3x$

C $6 - x$

D $5 - x$

Go on

21 Marilee bought five shirts at the North Georgia Premium Outlets. The shirts cost $12, $10, $8, $7, and $9, respectively. What is the mean price of the five shirts? **M7D1.c**

A $46

B $37

C $9.20

D $9

22 The perimeter of a rectangular yard is 86 feet. If the length is four more than twice the width, which equation can be used to find x, the width of the yard? **M7A2.a**

A $6x + 4 = 86$

B $2x + 2x + 4 = 86$

C $2x + 4 = 86$

D $2x + 2(2x + 4) = 86$

23 Firewood is often sold by the cord. A cord is 8 feet by 4 feet by 4 feet. How many cubic feet are in a cord? **M7G4.b**

A 16 ft³

B 128 ft³

C 160 ft³

D 200 ft³

24 Jorge ordered a pizza for lunch. He ate $\frac{1}{2}$ of the pizza and gave 3 slices to his friend. Jorge has one slice of pizza left. How many slices were in the whole pizza? **M7N1.c**
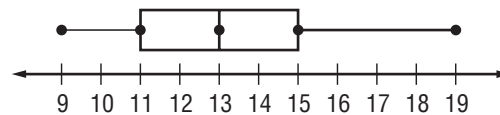
A 5

B 6

C 8

D 11

25 Evaluate. **M7N1.c**

$$2(6) + \frac{7 + 8}{3}$$

A 7

B 13

C 17

D 20

26 Rafael recorded the points per game of his favorite Atlanta Hawks player. The box-and-whisker plot shows the data he collected. What percentage of data falls between 11 and 19 in the box-and-whisker plot? **M7D1.f**

A 0%

B 25%

C 50%

D 75%

27 Evaluate the expression $4(d + 2) - 3d$ if $d = 3$. **M7A1.a**

A -13

B 5

C 8

D 11

28 Which of these quadrilaterals ALWAYS has four right angles? **M7G1.a**

A rectangle

B rhombus

C kite

D trapezoid

Go on

Diagnostic Test (continued)

29 Which equation describes the pattern in the table? **M7A3.b**

Input	−2	−1	0	1	2	3
Output	−4	−2	0	2	4	6

A Output = Input + 2
B Output = 2 × Input
C Input = 2 × Output
D Output = Input ÷ 2

30 Quadrilateral *JKLM* ≅ Quadrilateral *PQRS*. Which of these congruence statements is TRUE? **M7G3.c**

A $\overline{JK} \cong \overline{RS}$
B $\overline{LM} \cong \overline{QR}$
**C** $\angle K \cong \angle Q$
D $\angle M \cong \angle P$

31 A container is $\frac{2}{3}$ full of water. If the container holds 12 liters of water, how much water is in the container? **M7N1.d**

A $\frac{2}{3}$ L

B 4 L

C 6 L

D 8 L

32 Which of the following statements is TRUE about the equation $y = 3x$? **M7A3.b**

A As the value of *x* increases by one, the value of *y* increases by two.
B As the value of *x* increases by one, the value of *y* doubles.
C As the value of *x* increases by one, the value of *y* increases by three.
D As the value of *x* increases by one, the value of *y* triples.

33 Which of the following statements BEST describes the relationship between the variables plotted on the graph? **M7D1.g**
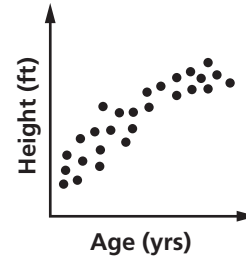
A There is no correlation between the variables.
B There is a positive correlation between the variables.
C There is a negative correlation between the variables.
D The relationship between the variables is linear.

34 Evaluate the expression. **M7N1.a**

$$|-4 + 1|$$

A 3
B −3
C 5
D −5

35 Simplify. **M7A1.c**

$$4(2x + 3) - 3(x - 1)$$

A $x - 1$
B $5x + 9$
**C** $11x + 15$
D $5x + 15$

Diagnostic Test (continued)

36 The *Parisian* is having a sale on the end-of-season clothing. Marika found a skirt that is on sale for 30% off its original price. The original price of a skirt is $75.50. What is the sale price of the skirt? **M7N1.d**

A $22.65

B $38.50

C $45.50

D $52.85

37 Which expression has the value −60? **M7N1.a**

A $|60|$

B $|-60|$

C $-|-60|$

D 60

38 Paul checked the prices of jeans at several stores in Savannah. Determine whether there are any outliers in the data. **M7D1.d**

   $34, $37, $31, $14, $39, $41, $34, $68, $39, $38, $31

A $14 is the only outlier.

B $39 is the only outlier.

C $14 and $68 are outliers.

D $54 is the only outlier.

39 Which point on the number line represents the greatest absolute value? **M7N1.a**

A *A*

B *B*

C *C*

D *D*

40 A submarine dives to a depth of 280 meters in 7 minutes. How deep does it dive in one minute at the same rate of speed? **M7N1.d**

A 287 m

B 40 m

C 4 m

D −273 m

41 A farmer is building a square pen that measures 24 feet on each side. He puts a post at each corner and one post every four feet. How many posts will he use in all? **M7A2.a**

A 4

B 22

C 24

D 28

42 Ernie's cell phone company charges a monthly fee of $15 and $0.20 per minute used. Ernie talked for 60 minutes this month. How much will his phone bill be, not including taxes? **M7A1.b**

A $27

B $45

C $85

D $135

Go on

Diagnostic Test (continued)

43 What will the coordinates of point *C* be if △*ABC* is reflected over the *x*-axis? **M7G2.b**
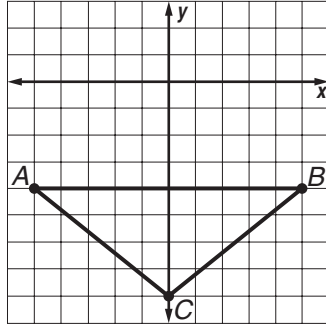
A (8, 0)
**B** (0, 8)
C (−8, 0)
D (0, −8)

44 Audrey's teacher asks her to multiply *x* and four and then add three. Which expression represents this situation? **M7A1.a**

A $4x + 3$
B $x + 3 \times 4$
C $4(x + 3)$
D $x(4 + 3)$

45 In a scale drawing of a house, 1 inch : 15 feet. If one side of the house is 37.5 feet, what is the length of that side in the drawing? **M7G3.a**

A 2.5 in.
B 0.4 ft
C 2.5 ft
D 562.5 in.

46 Which of the following shows the letter T reflected over the *x*-axis? **M7G2.b**

A

B

C
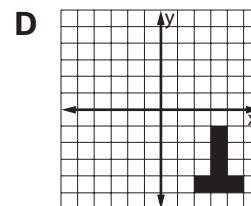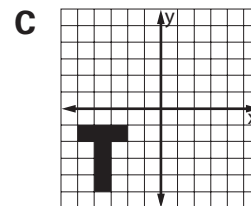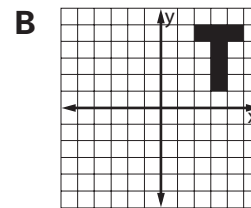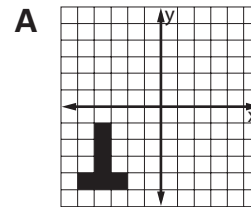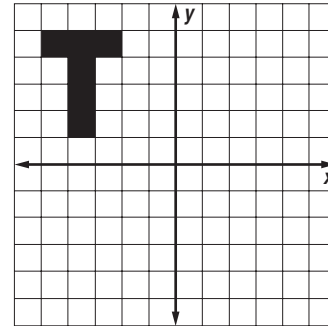
D

47 Donette wants to conduct a survey to find out the three most favorite condiments to put on a hamburger among 150 seventh-grade students. Which of the questions will BEST help Donette find out the most favorite condiments? **M7D1.a**

A What condiments do you have in your refrigerator at home, if any?

B How many times during an average month do you eat a hamburger?

C What is your favorite kind of sandwich?

D What is your favorite hamburger condiment?

48 Which list is ordered from LEAST to GREATEST? **M7N1.b**

A $\frac{16}{5}$, $3\frac{1}{4}$, 3.025, 32.5%

B 32.5%, $\frac{16}{5}$, $3\frac{1}{4}$, 3.025

C 3.025, 32.5%, $3\frac{1}{4}$, $\frac{16}{5}$

D 32.5%, 3.025, $\frac{16}{5}$, $3\frac{1}{4}$

49 Which point on the grid below represents the coordinates $(-3, 2)$? **M7A3.a**
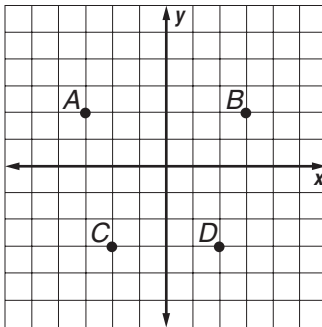
A *A*

B *B*

C *C*

D *D*

50 Kyle and his family will spend two weeks at St. Simons Island for a family vacation. Kyle wants to save $150 to spend on vacation. He has $60 in a savings account and will deposit $15 every week until he has enough money. Solve the equation $60 + 15w = 150$ to find how many weeks it will take Kyle to reach his target amount. **M7A2.b**

A 3 weeks

B 3.5 weeks

C 6 weeks

D 15 weeks

Use the figures below to answer Questions 51 and 52.
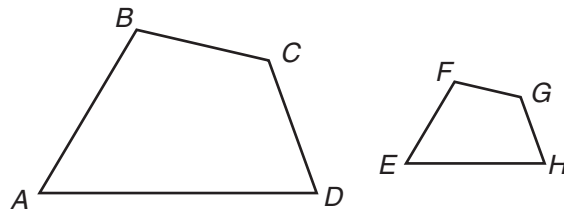
51 If $ABCD \sim EFGH$, which side corresponds to $\overline{FG}$? **M7G3.a**

A $\overline{AD}$

B $\overline{AB}$

C $\overline{CD}$

D $\overline{BC}$

52 Given $ABCD \sim EFGH$, $\overline{AB} = 4$ and $\overline{EF} = 1.5$. What is the scale factor from $ABCD$ to $EFGH$? **M7G3.b**

A $\frac{3}{1}$

B $\frac{8}{3}$

C $\frac{1}{3}$
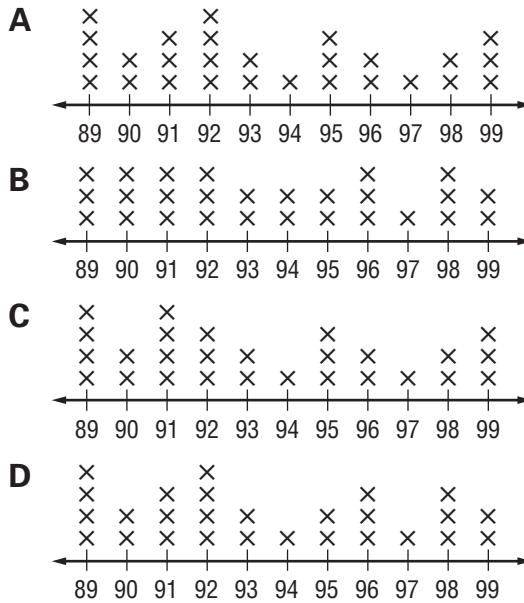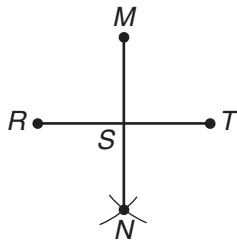
D $\frac{3}{8}$

Go on

Diagnostic Test (continued)

53 Which frequency distribution matches the following scores on a math quiz? **M7D1.b**

89, 89, 89, 89, 90, 90, 91, 91, 91, 92, 92, 92, 92, 93, 93, 94, 95, 95, 95, 96, 96, 97, 98, 98, 99, 99, 99

A

B

C

D

54 If line *NS* bisects line segment *RT,* which two triangles must be congruent? **M7G1.b**

A △*SNR* and △*SNT*
B △*SMR* and △*SMT*
C △*STM* and △*SRM*
D △*SNR* and △*SRM*

55 Which of the following statements about the relation below is TRUE? **M7A3.b**

{(−6, 4), (−2, 0), (1, 4), (8, −2)}

A It is a function because only one range value exists for each domain value.
B It is not a function because two domain values exist for range value 4.
C It is a function because the relation passes the vertical line test.
D It is a function because two domain values exist for the range value 4.

56 Three local newspapers distributions are shown in the graph below. Which statement about the papers is TRUE? **M7D1.f**
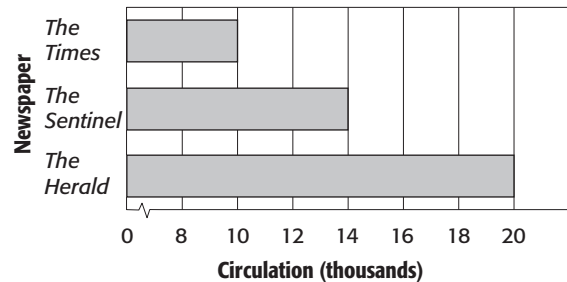
A The circulation of *The Sentinel* is twice that of *The Times*.
B The circulation of *The Herald* is twice that of *The Sentinel*.
C The circulation of *The Herald* is twice that of *The Times*.
D *The Sentinel* has the largest circulation of the three papers.

Diagnostic Test (continued)

57 **Which list shows the numbers in order from LEAST to GREATEST?** **M7N1.b**

  A $\frac{22}{11}, 2.01, 2.1, \frac{22}{10}$

  B $\frac{22}{11}, 2.01, \frac{22}{10}, 2.1$

  C $2.01, 2.1, \frac{22}{10}, \frac{22}{11}$

  D $\frac{22}{10}, 2.1, 2.01, \frac{22}{11}$

58 **If the scale factor between $\triangle ABC$ and $\triangle XYZ$ is $\frac{1}{2}$, what is the ratio of the area of $\triangle ABC$ to $\triangle XYZ$?** **M7G3.b**

  A $\frac{1}{4}$

  B $\frac{1}{2}$

  C $\frac{2}{4}$

  D 1

59 **Given $\triangle ABC \cong \triangle HIJ$, which side of $\triangle ABC$ corresponds to $\overline{HI}$ in $\triangle HIJ$?** **M7G3.c**

  A $\angle A$

  B $\overline{AB}$

  C $\overline{BC}$

  D $\overline{CA}$

60 **A rectangle is translated through space. Which three-dimensional figure is formed?** **M7G4.a**

  A   square

  B   rectangular pyramid

  C   rectangular prism

  D   cone

Stop

Standards Practice

Choose the best answer for each question.

M7N1.a **NUMBERS AND OPERATIONS**
Students will understand the meaning of positive and negative rational numbers and use them in computation. Find the absolute value of a number and understand it as the distance from zero on a number line.

1 Which expression has the value −45?
- **A** |−45|
- **B** 45
- **C** |45|
- **D** −|45|

2 Which list shows the values in order from GREATEST to LEAST?
- **A** 5, 2, |−2|, |−5|
- **B** |5|, 2, −|2|, −|−5|
- **C** −|−2|, −|5|, |−5|, 2
- **D** −|5|, −2, |−2|, 5

3 The average temperature was −12°C on Monday, 3°C on Tuesday, and −8°C on Wednesday. Which list shows these data in order from LEAST to GREATEST?
- **A** −12, −8, 3
- **B** −8, −12, 3
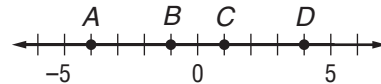- **C** 3, −8, −12
- **D** 3, −12, −8

4 Which of the following BEST describes the location of −5 on the number line?
- **A** to the left of −10
- **B** to the right of 0
- **C** to the left of 0
- **D** to the right of 10

5 Which integer is the opposite of 6?
- **A** 6
- **B** 0
- **C** |−6|
- **D** −|6|

6 Which point on the number line represents −4?

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

7 Which point on the number line has a value of |2|, or a distance of 2 units from zero?
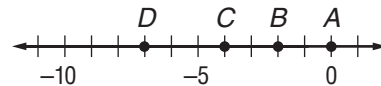
- **A** A
- **B** B
- **C** C
- **D** D

8 Evaluate the expression.
$$|-2| \times (-|-4| + |-2|)$$
- **A** −8
- **B** −4
- **C** 4
- **D** 16

9 The record high temperature in Georgia is 112°F and the record low is −17°F. What is the difference between the highest and lowest recorded temperatures?
- **A** −17°F
- **B** 95°F
- **C** 112°F
- **D** 129°F

10 Complete the statement by choosing the correct symbol to fill in the box.
$$|14| - 14 \ \Box \ |-14| + 14$$
- **A** >
- **B** <
- **C** =
- **D** ≤

Standards Practice

M7N1.b **NUMBERS AND OPERATIONS**
Students will understand the meaning of positive and negative rational numbers and use them in computation. Compare and order rational numbers, including repeating decimals.

1 Which set of rational numbers is in order from LEAST to GREATEST?

A $\frac{2}{5}, 0.\overline{6}, \frac{2}{7}, \frac{2}{8}$ **B** $\frac{2}{8}, 0.\overline{6}, \frac{2}{7}, \frac{2}{5}$

C $\frac{2}{5}, \frac{2}{7}, 0.\overline{6}, \frac{2}{8}$ **D** $\frac{2}{8}, \frac{2}{7}, \frac{2}{5}, 0.\overline{6}$

2 Which decimal is the closest approximation of $\frac{1}{3}$?

A 0.333   **B** 0.633

C 0.133   **D** 0.666

3 A carpenter has a bolt with a diameter of $\frac{5}{32}$ of an inch. What size hole will the bolt fit?

A 0.05 in.   **B** 0.10 in.

C 0.15 in.   **D** 0.20 in.

4 A customer at a deli asks for $\frac{3}{4}$ of a pound of bologna. The scale at the deli is a decimal scale. What should the scale read for the customer to get the amount of bologna ordered?

A 0.34   **B** 0.75

C 1.75   **D** 3.40

5 Which fraction is equivalent to $0.\overline{6}$?

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

C $\frac{2}{5}$ **D** $\frac{7}{10}$

6 What is the least common multiple of 12 and 20?

A 4   **B** 20

C 60   **D** 120

7 Joe's Snack Shack buys hamburgers in packages of 18 and buns in packages of 15. How many packages of each item must Joe buy to get equal amounts?

A 5 packs of hamburgers, 6 packs of buns

B 6 packs of hamburgers, 5 packs of buns

C 8 packs of hamburgers, 9 packs of buns

D 18 packs of hamburgers, 15 packs of buns

8 On a test, Gina got $\frac{5}{6}$ of the answers correct and Teddy got $\frac{7}{8}$ of the answers correct. Who did better on the test?

A Gina

B Teddy

C They did equally well.

D The answer cannot be determined from the information provided.

9 Jake can mow $\frac{4}{5}$ of Mr. Smith's lawn in one hour. Peter can mow $\frac{7}{9}$ of Mr. Smith's lawn in one hour. Who can mow more of the lawn in one hour?

A Jake

B Peter

C They can mow the same amount.

D The answer cannot be determined from the information provided.

10 Gianni and Frannie shared two pizzas, a pepperoni pizza cut into 8 pieces and a cheese pizza cut into 6 pieces. Gianni ate 5 slices of pepperoni pizza, and Frannie ate 4 pieces of cheese pizza. Who ate more pizza?

A Gianni

B Frannie

C Gianni and Frannie ate the same amount.

D The answer cannot be determined from the information provided.

Standards Practice

M7N1.c **NUMBERS AND OPERATIONS**
Students will understand the meaning of
positive and negative rational numbers and
use them in computation. Add, subtract,
multiply, and divide positive and negative
rational numbers.

1 **Which expression is equal to $\frac{1}{3} + \frac{1}{6}$?**

A $\frac{1}{2} + \frac{2}{4}$ **B** $\frac{1}{4} + \frac{2}{8}$

C $\frac{1}{5} + \frac{2}{10}$ **D** $\frac{1}{7} + \frac{2}{14}$

2 **Joe does science homework for $1\frac{1}{2}$ hours**
and math homework for $\frac{2}{3}$ hours. How
much time does he spend on homework?

A 2 hours   **B** $2\frac{1}{6}$ hours

C $2\frac{2}{3}$ hours   **D** 3 hours

3 **Kyle has a rope that is $10\frac{2}{3}$ feet long. He**
cuts off a piece that measures $8\frac{1}{4}$ feet.
How much rope is left?

A $\frac{11}{12}$ ft   **B** $1\frac{5}{12}$ ft

C $2\frac{1}{12}$ ft   **D** $2\frac{5}{12}$ ft

4 **Jen and Frank like to ride their bicycles**
on a six-mile path through town. They
ride for $3\frac{1}{3}$ miles and stop for a break.
How much farther do they need to ride
to reach the end of the path?

A $4\frac{1}{3}$ mi   **B** $3\frac{2}{3}$ mi

C $3\frac{1}{3}$ mi   **D** $2\frac{2}{3}$ mi

5 **What is the product of $-\frac{5}{6} \times \frac{2}{3}$?**

A $-\frac{7}{9}$ **B** $-\frac{5}{9}$

C $\frac{5}{9}$ **D** $\frac{7}{9}$

6 **Kyle spends $\frac{2}{3}$ of an hour on homework.**
His sister, Jan, spends $1\frac{1}{4}$ as much time
on her homework as Kyle spends on his.
How much time does Jan spend on her
homework?

A $1\frac{3}{7}$ hours   **B** $1\frac{1}{6}$ hours

C $\frac{5}{6}$ hours   **D** $\frac{11}{15}$ hours

7 **A crew has to install a cable beside**
$1\frac{1}{2}$ miles of road. The crew can
install $\frac{1}{3}$ mile per day. How many days
will it take to install the cable?

A 5 days   **B** $4\frac{1}{2}$ days

C 3 days   **D** $\frac{1}{2}$ days

8 **Barbara has a roll of material that**
measures $14\frac{1}{2}$ feet long. She cuts the
material into pieces, each of which
measures $\frac{3}{4}$ foot. How many of these
pieces of material does she have?

A 16 pieces   **B** 17 pieces
C 18 pieces   **D** 19 pieces

9 **An upholsterer cuts a $1\frac{2}{3}$ foot piece**
of cording from a piece that is $2\frac{1}{4}$ feet
long. How much cording is left?

A $\frac{7}{12}$ ft   **B** $1\frac{5}{12}$ ft

C $1\frac{7}{12}$ ft   **D** $3\frac{11}{12}$ ft

10 **Leanne is making a recipe that calls for**
$\frac{2}{3}$ teaspoon of salt, but she uses only $\frac{1}{2}$
that amount. How much salt does she use?

A $\frac{1}{6}$ teaspoon   **B** $\frac{1}{3}$ teaspoon

C $\frac{3}{4}$ teaspoon   **D** $\frac{7}{6}$ teaspoon

Standards Practice

M7N1.d **NUMBERS AND OPERATIONS**
Students will understand the meaning of positive and negative rational numbers and use them in computation. Solve problems using rational numbers.

1 **Last year Lake Wissauga rose to 672.3 feet during the spring floods. This year Lake Wissauga rose to 712.34 feet. How much higher did the lake rise this year?**
A 12.3 ft   **B** 40.4 ft
C 40.04 ft   **D** 72.04 ft

2 **To accommodate a wheelchair, a builder installs a sink 0.75 feet lower than a sink at standard height. The new sink is 2.5 feet high. How high is a standard-height sink?**
A 3.5 ft   **B** 3.25 ft
C 2.5 ft   **D** 1.75 ft

3 **Your job is to paint $\frac{1}{4}$ of the 1,200 lockers in your school. Your friend decides to split the job with you. How many lockers is your friend going to paint?**
A 600 lockers   **B** 300 lockers
C 150 lockers   **D** 50 lockers

4 **A sheet of plywood is $\frac{3}{4}$ of an inch thick. How many sheets are in a stack of plywood that is 1 foot high?**
A 9 sheets   **B** 16 sheets
C 36 sheets   **D** 48 sheets

5 **A single copy of a book is $2\frac{3}{4}$ inches thick. A shipping box holds a stack of books up to $16\frac{1}{2}$ inches tall. How many copies of the book will stack in a box?**
A 6   **B** 8
C 13   **D** 19

6 **Betty's bedroom is $10\frac{1}{2}$ feet by 12 feet. How much carpet does she need to buy to cover the entire floor with no carpet left over?**
A 121 ft²   **B** 126 ft²
C 130 ft²   **D** 252 ft²

7 **Last weekend, Alexi spent $\frac{1}{2}$ of his money on the movies and $\frac{1}{4}$ of his money on food. He has $7.50 remaining. How much money did he have originally?**
A $10   **B** $22.50
C $30   **D** $37.50

8 **At the end of the school year, Mary was $59\frac{1}{2}$ inches tall. She had grown $3\frac{5}{8}$ inches during the year. What was her height at the beginning of the year?**
A $55\frac{7}{8}$ in.   **B** $56\frac{7}{8}$ in.
C $59\frac{1}{8}$ in.   **D** $63\frac{1}{8}$ in.

9 **A damaged oil tanker spilled 28.2 million gallons of oil over three days. On average, how many gallons did the tanker spill per day?**
A 9.4 million gal
B 25.2 million gal
C 84.6 million gal
D 94 million gal

10 **While fishing, Billy caught three fish. The first weighed $1\frac{1}{3}$ pounds. The rest weighed $4\frac{1}{3}$ pounds, $2\frac{1}{2}$ pounds, and $1\frac{5}{6}$ pounds. Billy released all but his single largest fish. What is the total weight of the fish he released?**
A 4 lb   **B** $4\frac{1}{3}$ lb
**C** $5\frac{2}{3}$ lb   **D** 10 lb

Standards Practice

M7G1.a **GEOMETRY** **Students will construct plane figures that meet given conditions.** Perform basic constructions using both compass and straight edge, and appropriate technology. Constructions should include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

1 **Which statement is the MOST appropriate first step in constructing a line segment of the same length as one that is given?**

A Use a ruler to find the length of the given line segment.

B Extend the given line segment.

C Draw a straight line with the straightedge.

D Label a third point on the given line segment.

2 **The following diagram shows the bisecting of a line segment. Which line segment bisects $\overline{AB}$?**
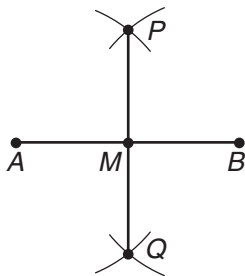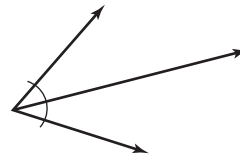

A $\overline{AM}$
B $\overline{MB}$
C $\overline{PB}$
D $\overline{PQ}$

3 **What tools are needed for accurate construction of geometric functions?**

A a compass and a protractor

B a compass and a straightedge

C a straightedge and a protractor

D a compass only

4 **Which construction does the figure below show?**

A bisecting of an angle

B measuring of an angle

C bisecting of a line segment

D construction of congruent segments

5 **The following diagram shows line b and point C. Which is the MOST appropriate first step in constructing a parallel line to line b?**
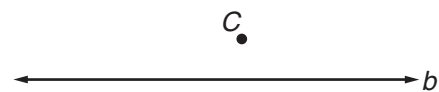
A Use a compass to measure between line b and point C.

B Place the point of a compass at point C and draw a large arc.

C Label the point on line b that is closest to point C.

**D** Draw a line through point C so that it intersects line b.

Standards Practice

M7G1.b **GEOMETRY Students will construct plane figures that meet given conditions.** Recognize that many constructions are based on the creation of congruent triangles.

1 **Which of the following constructions CANNOT be verified by using congruent triangles?**
  A construction of parallel lines
  B bisecting of a line segment
  C bisecting of an angle
  D construction of a perpendicular line

2 **The angle bisector construction shown below creates △*ABD* and △*ACD*. Which of the following statements is TRUE?**
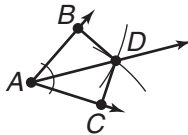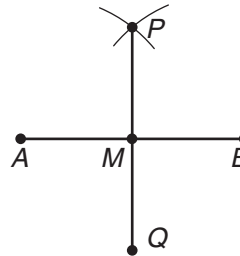

  A △*ABD* and △*ACD* are irregular triangles.
  B △*ABD* and △*ACD* are scalene triangles.
  C △*ABD* and △*ACD* are obtuse triangles.
  D △*ABD* and △*ACD* are congruent right triangles.

3 **Which of the following CANNOT be constructed by two congruent triangles?**
  A rectangle
  B rhombus
  C parallelogram
  D trapezoid

4 **If line *PM* bisects line segment *AB*, which two triangles must be congruent?**

  A △*ABP* and △*ABQ*
  B △*APM* and △*BPM*
  C △*AQB* and △*APM*
  D △*AMQ* and △*AQB*

5 **Use the figure in Question 3. If △*PBM* is congruent to △*QBM*, which of the following statements is TRUE?**
  A $\overline{PM}$ bisects $\overline{AB}$.
  B $\overline{QM}$ bisects $\overline{AB}$.
  C $\overline{BM}$ bisects $\overline{PQ}$.
  D $\overline{PQ}$ is an angle bisector.

6 **If line *AB* bisects line segment *EF*, which two triangles must be congruent?**
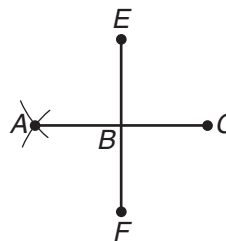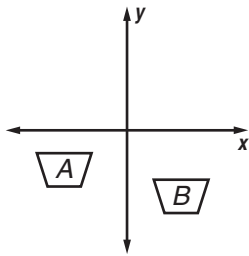

  A △*ABF* and △*ABE*
  B △*ABE* and △*EBC*
  C △*AEB* and △*CBE*
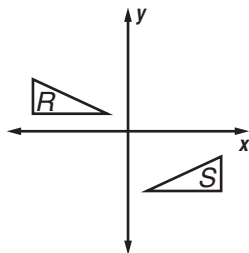 **D** △*EBC* and △*FBC*

Standards Practice

M7G2.a **GEOMETRY Students will demonstrate understanding of transformations.** Demonstrate understanding of translations, dilations, rotations, reflections, and relate symmetry to appropriate transformations.

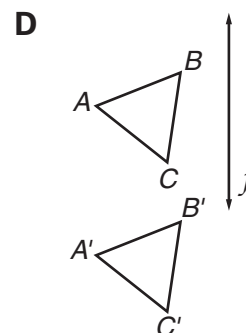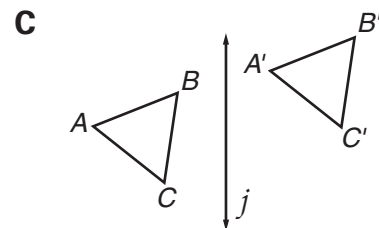**1** Which BEST describes the transformation of the trapezoid from *A* to *B*?
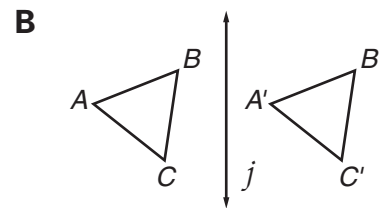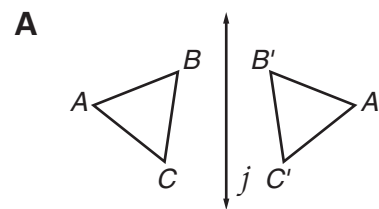
A translation **B** rotation
C reflection **D** dilation

2 Which BEST describes the transformation of the triangle from *R* to *S*?

A translation and rotation
B rotation and reflection
C translation and dilation
D translation and reflection

3 Which item shows a reflection of △*ABC* over line *j*?

A

B

C

D
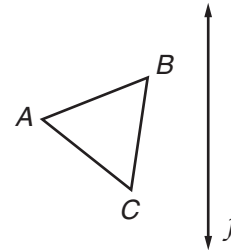
Standards Practice

M7G2.a **GEOMETRY** (continued)

4 Which figure shows a dilation of △XYZ?

A

B

C

D
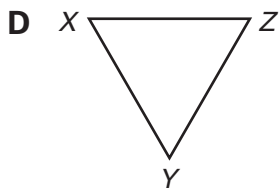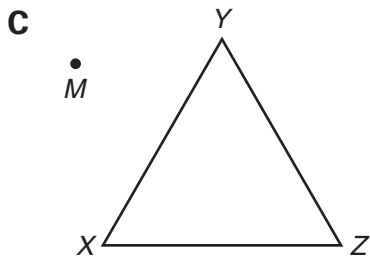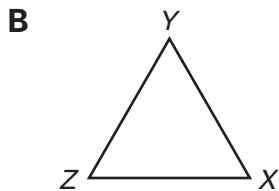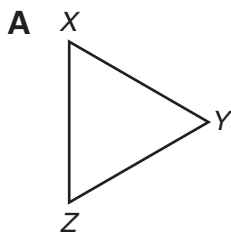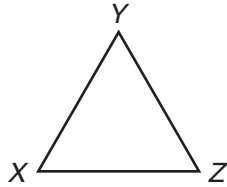
5 Which figure has rotational symmetry?

A

B

C

D
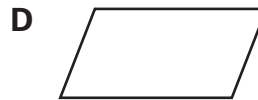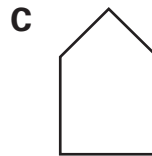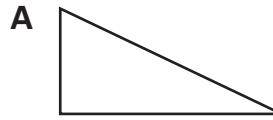
6 Which figure has reflectional symmetry?

A

B

C

D

Standards Practice

M7G2.b **GEOMETRY** **Students will demonstrate understanding of transformations.** Given a figure in the coordinate plane, determine the coordinates resulting from a translation, dilation, rotation, or reflection.

1 What are the coordinates of the vertices of the image of △*PQR* after a translation of 5 units right and 3 units down?
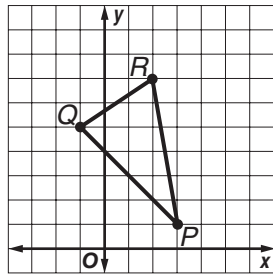
A $P'(8, 4)$, $Q'(4, 8)$, $R'(7, 10)$

B $P'(8, -2)$, $Q'(4, 2)$, $R'(7, 4)$

C $P'(0, 6)$, $Q'(-4, 10)$, $R'(-1, 12)$

D $P'(-2, -2)$, $Q'(-6, 2)$, $R'(-3, 4)$

2 What are the coordinates of △*ABC* after a reflection over the *y*-axis?
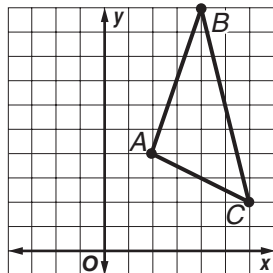
A $A'(2, -4)$, $B'(4, -10)$, $C'(6, -2)$

B $A'(-2, -4)$, $B'(-4, 10)$, $C'(-6, -2)$

C $A'(-2, 4)$, $B'(-4, 10)$, $C'(-6, 2)$

D $A'(-2, -4)$, $B'(-4, -10)$, $C'(-6, -2)$

3 What are the coordinates of the vertices of the image of △*RST* after a rotation of 90° about the origin?
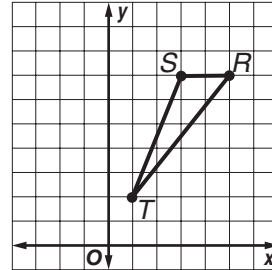
A $R'(-7, 5)$, $S'(-7, 3)$, $T'(-2, 1)$

B $R'(5, -7)$, $S'(3, -7)$, $T'(1, -2)$

C $R'(-5, 7)$, $S'(-3, 7)$, $T'(-1, 2)$

D $R'(-5, -7)$, $S'(-3, -7)$, $T'(-1, -2)$

4 What are the coordinates of △*FGH* after a dilation centered at the origin with a scale factor of 2?
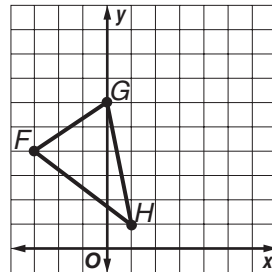
A $F'(6, 8)$, $G'(0, 12)$, $H'(2, 2)$

B $F'(-6, 8)$, $G'(2, 12)$, $H'(3, 3)$

C $F'(-5, 6)$, $G'(2, 8)$, $H'(3, 3)$

D $F'(-6, 8)$, $G'(0, 12)$, $H'(2, 2)$

Standards Practice

M7G3.a **GEOMETRY** **Students will use the properties of similarity and apply these concepts to geometric figures.** Understand the meaning of similarity, visually compare geometric figures for similarity, and describe similarities by listing corresponding parts.

1 **Which of the following statements BEST describes the relationship between the side lengths and angle measures of similar figures?**
  A Similar figures have equal side lengths and equal angle measures.
  B Similar figures have proportional side lengths and equal angle measures.
  C Similar figures have side lengths that have no relationship and proportional angle measures.
  D Similar figures have proportional side lengths and proportional angle measures.

2 **Quadrilateral *ABCD* and Quadrilateral *EFGH* are similar. Which of the following statements is NOT true?**

  A $m\angle B$ is equal to $m\angle F$.
  B $\overline{AB}$ is proportional to $\overline{EF}$.
  C $\overline{CD}$ is congruent to $\overline{GH}$.
  D $m\angle C$ is equal to $m\angle G$.

3 **Which of the following items shows a pair of similar figures?**

A

B

C

D
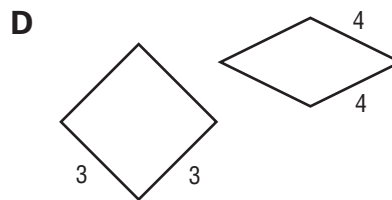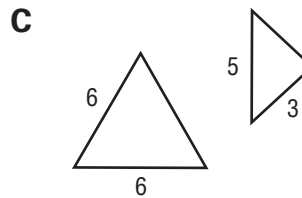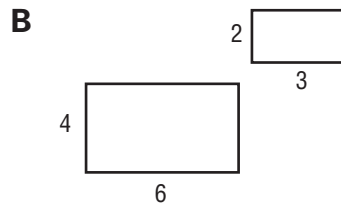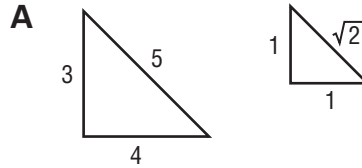
4 **Which of the following statements about the triangles shown is TRUE?**
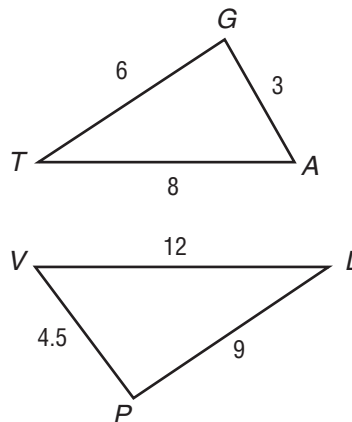
  A $\triangle GTA \sim \triangle PVL$
  B $\triangle AGT \sim \triangle LPV$
  C $\triangle GTA \sim \triangle PLV$
  D $\triangle GAT \sim \triangle PVL$

Standards Practice

M7G3.b **GEOMETRY** **Students will use the properties of similarity and apply these concepts to geometric figures.** Understand the relationships among scale factors, length ratios, and area ratios between similar figures. Use scale factors, length ratios, and area ratios to determine side lengths and areas of similar geometric figures.

1 *ABCDE* **is similar to** *FGHIJ.* **The scale factor is** $\frac{4}{5}$. **If** $\overline{CD}$ **measures 5 centimeters, what is the length of** $\overline{HI}$?
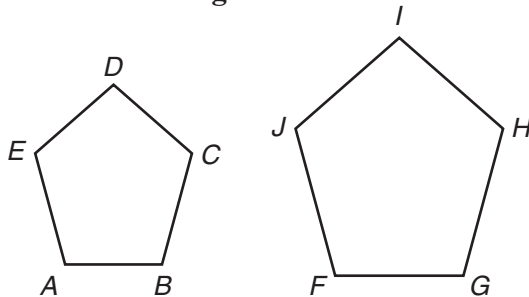
- **A**   5 cm
- **B**   6.25 cm
- **C** 11 cm
- **D** 20 cm

2 △*XYZ* **is similar to** △*PTA.* **The scale factor is 2:5. What is the ratio of the areas?**
- **A** 4:10
- **B** 2:5
- **C** 4:25
- **D** 8:25

3 △*ABC* **and** △*DEF* **are similar triangles with a scale factor of 3:7. If** $\overline{BC}$ **measures 9 inches, what is the length of** $\overline{EF}$?
- **A** 28 in.
- **B** 21 in.
- **C** 18 in.
- **D** 14 in.

4 *PQRST* **is similar to** *KLMNO.* **What is the length of** *x*?
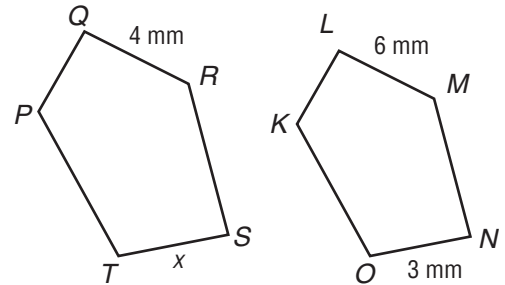
- **A** 6 mm
- **B** 4.5 mm
- **C** 1 mm
- **D** 2 mm

5 **Square 1 is similar to Square 2. The scale factor is 5:2. If the area of Square 1 is 56.25 square feet, what is the area of Square 2?**
- **A**   9 ft²
- **B** 12.25 ft²
- **C** 22.5 ft²
- **D** 25 ft²

6 *JKLM* **is similar to** *PQRS.* **The scale factor is 3:1. If** $\overline{KL}$ **measures 12 inches, what is the length of** $\overline{QR}$?
- **A** 12 in.
- **B** 8 in.
- **C** 4 in.
- **D** 2 in.

7 △*RST* **is similar to** △*XYZ.* **The scale factor is** $\frac{1}{4}$. **If the area of** △*XYZ* **is 32 square centimeters, what is the area of** △*RST*?
- **A** 10 cm²
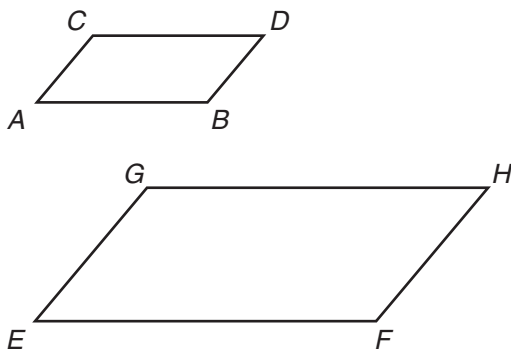- **B** 8 cm²
- **C** 4 cm²
- **D** 2 cm²

Standards Practice

M7G3.c **GEOMETRY** **Students will use the properties of similarity and apply these concepts to geometric figures.** Understand congruence of geometric figures as a special case of similarity: The figures have the same size and shape.

1 Which of the following statements is TRUE?

A Similar polygons are congruent when all corresponding parts are equal.

B Similar polygons are congruent when one or more sets of corresponding sides are equal.

C Similar polygons are congruent when all corresponding angles are equal.

D Similar polygons are always congruent.

2 Quadrilateral *ABCD* has coordinates *A*(−3, 6), *B*(2, 6), *C*(−1, 2), and *D*(−4, 3). Quadrilateral *FGHI* has coordinates *F*(1, 3), *G*(6, 3), *H*(3, −1). What are the coordinates for point *I* so that *ABCD* ∼ *FGHI* and *ABCD* ≅ *FGHI*?
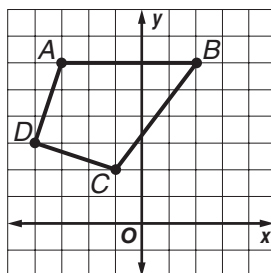
A (1, 1)

B (0, 1)

C (0, 0)

D (−1, 0)

3 Which of the following sets of similar figures is also congruent?

Set 1   Set 2   Set 3
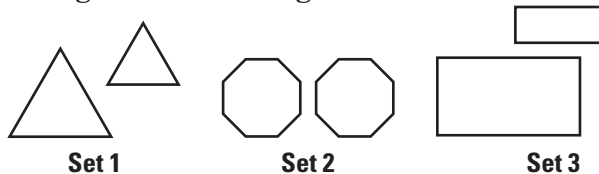
A Set 1

B Set 2

C Set 3

D Sets 1, 2, 3

4 If two polygons are both similar and congruent, which of the following statements is TRUE?

A The ratio of the corresponding side lengths is 0 and the ratio of their areas is 1.

B The ratio of their side lengths is 1 and the ratio of their areas is 0.

C The ratio of their side lengths is 1 and the ratio of their areas is 1.

D The ratio of their side lengths is 1 and the ratio of their areas is 2.

5 △*ABC* and △*DEF* are congruent triangles. What is the measure of ∠*DEF*?
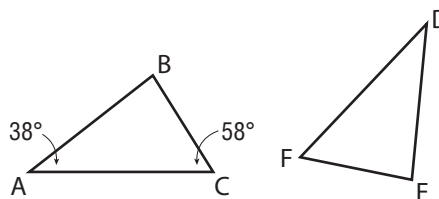
A 64°

B 78°

C 84°

D 92°

Standards Practice

M7G4.a **GEOMETRY** **Students will further develop their understanding of three-dimensional figures.** Describe three-dimensional figures formed by translations and rotations of plane figures through space.

1 Which solid figure is formed by rotating a circle in space?
   A cone
   B sphere
   C cylinder
   D rectangular prism

2 Which three-dimensional figure is formed by translating a rectangle through space?
   A cone
   B sphere
   C cylinder
   D rectangular prism

3 A cone is formed by rotating which figure in space?
   A square
   B triangle
   C circle
   D rectangle

4 A triangle is translated through space. Which three-dimensional figure is formed?
   A cone
   B sphere
   C cylinder
   D triangular prism

5 A cylinder is formed when which of the following figures is rotated through space?
   A square
   B triangle
   C circle
   D rectangle

6 Which three-dimensional figure is formed by translating a square through space?
   A square pyramid
   B cube
   C cone
   D cylinder

7 Which plane figure forms a cylinder when it is translated through space?
   A triangle
   B rectangle
   C sphere
   D circle

8 Which three-dimensional figure is formed by translating a pentagon through space?
   A octagonal pyramid
   B hexagonal prism
   C pentagonal pyramid
   D pentagonal prism

Standards Practice

M7G4.b **GEOMETRY** **Students will further develop their understanding of three-dimensional figures.** Sketch, model, and describe cross sections of cones, cylinders, pyramids, and prisms.

1 Which of the following figures shows a horizontal cross section of a cylinder?

A

B
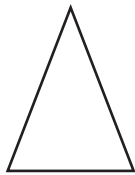
C
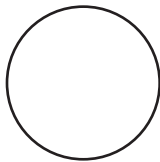
D

2 Look at the figure shown. For which solid figure is it a vertical cross section?
A cone
B prism
C sphere
D cylinder
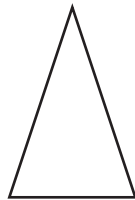
3 Which of the following figures shows a vertical cross section of a pyramid?

A
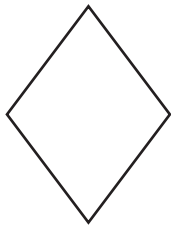
B
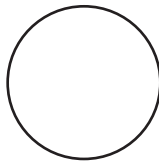
C

D

4 Look at the figure shown. For which solid figure is it a horizontal cross section?
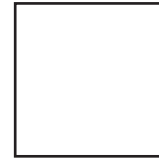
A sphere
B cylinder
C cone
D pyramid

5 Which of the following figures shows a horizontal cross section of a cone?

A
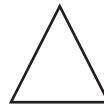
B
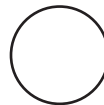
C

D

6 Look at the figure shown. For which solid figure is it a vertical cross section?

A cylinder
B pyramid
C cone
D sphere

Standards Practice

M7A1.a **ALGEBRA** **Students will represent and evaluate quantities using algebraic expressions.** Translate verbal phrases to algebraic expressions.

1 Which expression represents *15 less than a number x?*
 A $15 - x$
 B $x - 15$
 C $15 \div x$
 D $x \div 15$

2 Which expression represents *23 more than a number n?*
 A $n + 23$
 B $n - 23$
 C $n > 23$
 D $23 > n$

3 Mohammed baked *x* batches of cookies to take to school. Each batch had 15 cookies. Mohammed ate 9 of the cookies he baked. Which expression represents the number of cookies that Mohammed took to school?
 A $15 + x - 9$
 B $9 - 15 - x$
 C $15 \div x - 9$
 D $15x - 9$

4 Phil wants to join a health club. One club charges a one-time joining fee of $55 and a monthly fee of $23. Which expression represents this situation?
 A $55m + 23$
 B $23m + 55$
 C $(55 + 23)m$
 D $55 - 23m$

5 Bianca works at a flower shop. In a recent delivery of roses, Bianca had to throw out 7 roses that had wilted. She divided the remaining roses into bunches of 12. Which expression represents this situation?
 A $12(w - 7)$
 B $12w + 7$
 C $\frac{w - 7}{12}$
 D $12(w \div 7)$

6 Which expression represents *18 more than the quotient of 20 and y?*
 A $(20 - y) + 18$
 B $20y + 18$
 C $18 - 20 \div y$
 D $(20 \div y) + 18$

7 Which expression represents *14 more than the product of 9 and x?*
 A $9x + 14$
 B $\frac{9}{x} + 14$
 C $14 - \frac{9}{x}$
 D $9x - 14$

8 Which expression represents *12 less than the quotient of s and 8?*
 A $12 - s \times 8$
 B $(8 \div s) + 12$
 C $(s \div 8) - 12$
 D $(s \div 12) - 8$

Standards Practice

M7A1.b **ALGEBRA** **Students will represent and evaluate quantities using algebraic expressions.** Simplify and evaluate algebraic expressions, using commutative, associative, and distributive properties as appropriate.

1 Simplify the expression.

$$25x + 7y - 14x$$

  A $18xy$
  B $11x + 7y$
  C $11x^2 + 7y$
  D $39x + 7y$

2 Simplify the expression.

$$4(8w + 5)$$

  A $52w$
  B $8w + 20$
  C $32w + 5$
  D $32w + 20$

3 Evaluate the expression $9m - 12n + 3m$ if $m = 6$ and $n = 2$.

  A 24
  B 36
  C 48
  D 60

4 Which property allows Paolo to simplify the expression?

$$17t - 2t - 8u + 6u + 4s = 15t - 2u + 4s$$

  A Distributive Property
  B Associative Property
  C Commutative Property
  D Identity Property

5 Evaluate the expression $4y + (6y + 18)$ if $y = 9$.

  A 252
  B 108
  C 98
  D 37

6 Which property did Shantelle use to simplify the expression?

$$2(4 - 3x) + 5(y + 3) = 8 - 6x + 5y + 15$$

  A Distributive Property
  B Associative Property
  C Commutative Property
  D Identity Property

7 Evaluate the expression $2(4a + 3b) - 12$ if $a = 5$ and $b = 8$.

  A 10
  B 15
  C 32
  D 76

8 Evaluate the expression $5a - (8a - 6)$ if $a = 5$.

  A 12
  B 9
  C -9
  D -12

9 Simplify the expression.

$$7(8c - 7)$$

  A $-56c - 49$
  B $-56c + 49$
  C $56c + 49$
  D $56c - 49$

Standards Practice

M7A1.c **ALGEBRA** **Students will represent and evaluate quantities using algebraic expressions.** Add and subtract linear expressions.

1 Find the sum.

$$(11x + 9) + (3x - 6)$$

A $14x + 3$
B $14x + 15$
C $14x - 3$
D $8x + 3$

2 Simplify the expression.

$$(21a - 5b + 4) + (3a + 14b + 7)$$

A $18a + 19b + 11$
B $33ab + 11$
C $24a - 9b + 11$
D $24a + 9b + 11$

3 Simplify the expression.

$$(19w + 31y) - (7w + 12y)$$

A $11w + 21y$
B $12w + 19y$
C $12w + 21y$
D $12w + 43y$

4 Find the difference.

$$(21g - 14h + 36k) - (16g + 7h + 20k)$$

A $5g - 7h + 16k$
B $5g + 7h + 56k$
C $5g - 21h + 16k$
D $5g - 21h + 56k$

5 Find the difference.

$$(16q + 19r) - (29r + 17t)$$

A $13q + 10r$
B $16q + 10r + 17t$
C $16q - 10r + 17t$
D $16q - 10r - 17t$

6 Simplify the expression.

$$(18m + 7n - 8) + (6m - 5n + 10)$$

A $12m - 2n - 2$
B $24m + 2n + 2$
C $24m - 12n + 2$
D $24m + 12n - 18$

7 Find the sum.

$$(11x + 4y - 5z) + (3x + 5y - z)$$

A $14x + 9y - 4z$
B $14x + 9y - 6z$
C $14x + y + 4z$
D $8x - y + 5$

8 Simplify the expression.

$$(9r + 5s - 6t) + (2r - s - 8t)$$

A $11r + 6s - 14t$
B $11r + 4s - 14t$
C $11r + 4s + 14t$
D $7r + 6s - 2t$

9 Find the difference.

$$(a - 6b + 3c) - (4a + 2b + c)$$

A $-3a - 8b + 2c$
B $-5a - 4b + 4c$
C $-5a - 4b - 4c$
D $-5a + 4b + 2c$

Standards Practice

M7A2.a **ALGEBRA Students will understand and apply linear equations in one variable.** Given a problem, define a variable, write an equation, solve the equation, and interpret the solution.

Use the information below to answer Questions 1–4.

Lesley's class is selling T-shirts for their class fund-raiser. If she sells 35 T-shirts, she can get a sports poster as a prize. She has sold 21 T-shirts so far. How many more T-shirts does she need to sell to get the sports poster?

1 **What does the variable y represent in the problem?**
   A the total number of T-shirts that Lesley needs to sell to get the sports poster
   B the number of T-shirts that Lesley's family bought from her
   C the number of T-shirts that Lesley has sold
   D the number of T-shirts that Lesley still needs to sell to get the sports poster

2 **Which equation represents the situation?**
   A $35 \div y = 21$ **B** $21 + y = 35$
   C $21 + 35 = y$ **D** $35 + y = 21$

3 **What is the solution to the equation in Question 2?**
   A 12   **B** 14
   C 56   **D** 66

4 **What does the solution from Question 3 mean?**
   A Lesley has sold 23 T-shirts.
   B Lesley's class has sold 113 T-shirts.
   C Lesley needs to sell 14 more T-shirts.
   D Lesley bought 17 T-shirts.

Use the information below to answer Questions 5–8.

The Lawson family is planning a vacation. The family has budgeted $2,000 for the one-week vacation. Mr. Lawson has budgeted $250 for travel. Mrs. Lawson thinks that $85 a day will cover the cost of food for the four of them. How much can the Lawsons spend on hotels, 7*s*, if they want to have $245 to spend on outings?

5 **What does the variable s represent in this problem?**
   A the number of nights the Lawsons will be on vacation
   B the cost of the hotel per night
   C the number of meals the Lawsons will eat while on vacation
   D the cost of gasoline for the trip

6 **Which equation represents this situation?**
   A $2,000 = (250 + 245) + (85 \times 7) + 7s$
   B $(250 + 245 + 85)s = 2,000$
   C $85 \times 7 - (250 - 245) + 7s = 2,000$
   D $2,000 - 245 - 250 = (85 \times 7)s$

7 **What is the solution to the equation in Question 6?**
   A 2.57   **B** 3.44
   C 130   **D** 201

8 **What does the solution from Question 7 represent?**
   A The Lawsons will have $2.47 extra to spend each day.
   B The Lawsons can spend $130 a night on hotels.
   C The Lawsons will spend $201 for hotels during their vacation.
   D The Lawsons can spend $3.44 for gasoline.

Standards Practice

M7A2.b **ALGEBRA** **Students will understand and apply linear equations in one variable.** Use the addition and multiplication properties of equality to solve one- and two-step linear equations.

1 Solve for *x*.

$$5x = 95$$

- **A** 475
- **B** 100
- **C** 90
- **D** 19

2 Solve for *x*.

$$\frac{x}{6} = 12$$

- **A** 2
- **B** 18
- **C** 72
- **D** 84

3 Which statement can be a first step in solving $3x + 9 = 45$ for *x*?
- **A** Subtract 9 from both sides of the equation.
- **B** Add 9 to both sides of the equation.
- **C** Divide all terms by 9.
- **D** Multiply all terms by 3.

4 Solve for *x*.

$$7x - 34 = 64$$

- **A** 4
- **B** 14
- **C** 37
- **D** 91

5 Which statement can be the second step in solving $\frac{s}{5} - 7 = 53$?
- **A** Subtract 7 from both sides of the equation.
- **B** Add 7 to both sides of the equation.
- **C** Divide terms on both sides of the equation by 4.
- **D** Multiply terms on both sides of the equation by 4.

6 Solve for *x*.

$$\frac{x}{9} + 46 = 73$$

- **A** 1,071
- **B** 243
- **C** 13
- **D** 3

7 Which can be a second step in solving $4a - 3 = 17$ for *a*?
- **A** Subtract 3 from both sides of the equation.
- **B** Add 4 to both sides of the equation.
- **C** Multiply terms on both sides of the equation by 4.
- **D** Divide terms on both sides of the equation by 4.

8 Solve for *n*.

$$\frac{n}{7} + 57 = 66$$

- **A** 462
- **B** 123
- **C** 63
- **D** 9

Standards Practice

M7A3.a **ALGEBRA** **Students will understand relationships between two variables.** Plot points on a coordinate plane.

Use the graph to answer Questions 1–4.
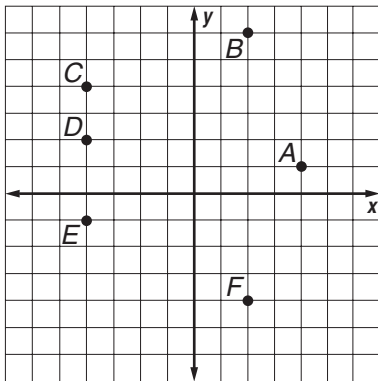
1 Which point has the coordinates (2, −4)?
  A *B*   **B** *D*
  C *F*   **D** *E*

2 What are the coordinates of point *C*?
  A (4, 4)
  B (4, −4)
  C (−4, 4)
  D (−4, −4)

3 Which point has the coordinates (−4, −1)?
  A *A*   **B** *C*
  C *D*   **D** *E*

4 What are the coordinates of point *B*?
  A (2, 6)
  B (2, 7)
  C (2, −6)
  D (−2, 7)

Use the graph to answer Questions 5–8.
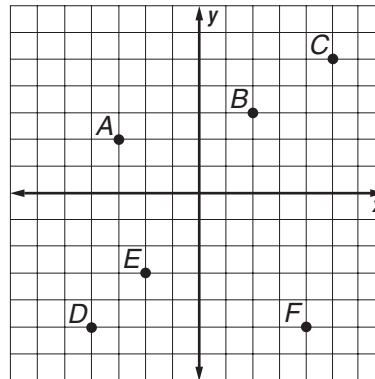
5 Which point has the coordinates (2, 3)?
  A *A*
  B *B*
  C *D*
  D *E*

6 What are the coordinates of point *F*?
  A (5, 4)
  B (4, −5)
  C (−5, 4)
  D (−5, −5)

7 Which point has the coordinates (5, 5)?
  A *A*
  B *C*
  C *D*
  D *E*

8 What are the coordinates of point *D*?
  A (−4, −5)
  B (−4, 5)
  C (4, −5)
  D (4, 5)

Standards Practice

M7A3.b **ALGEBRA Students will understand relationships between two variables.** Represent, describe, and analyze relations from tables, graphs, and formulas.

1 Which equation represents the line drawn on this coordinate plane?
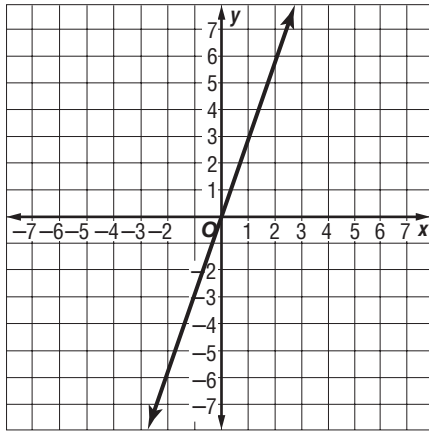
A $y = x + 2$ **B** $y = x + 3$
C $y = 2x$ **D** $y = 3x$

2 Which equation represents the relation shown in the table?

x	2	4	6	8	10
y	8	10	12	14	16

A $y = x + 2$
B $y = x + 6$
C $y = 2x$
D $y = 6x$

3 Which equation represents the relation shown in the table?

x	1	2	3	4	5
y	8	16	24	32	40

A $y = 8x$
B $y = x + 8$
C $y = 7x$
D $y = x + 7$

4 Which graph shows the graph of the line for $y = \frac{2}{5}x - 3$?

A

B

C

D
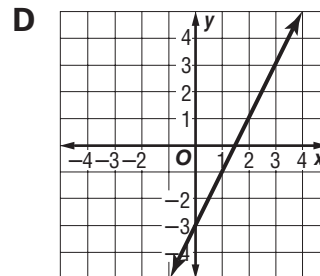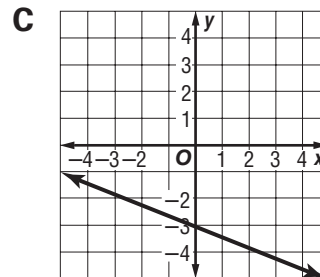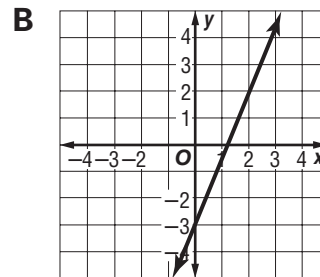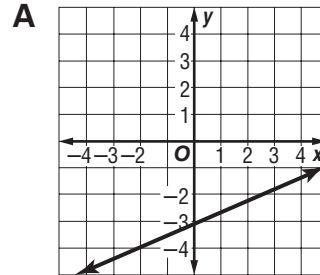
Standards Practice

M7A3.c **ALGEBRA** **Students will understand relationships between two variables.** Describe how change in one variable affects the other variable.

1 **Which of the following statements is TRUE for the line on the graph below?**
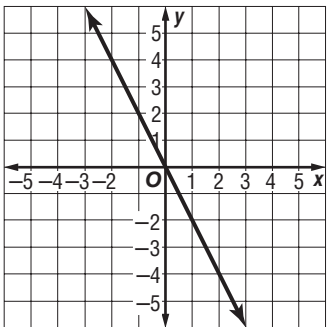
  A As *x* increases, *y* remains constant.
  B As *x* increases, *y* increases.
  C As *x* increases, *y* decreases.
  D As *x* decreases, *y* remains constant.

2 **Describe how the change in *x* affects the change in *y* on the graph below.**
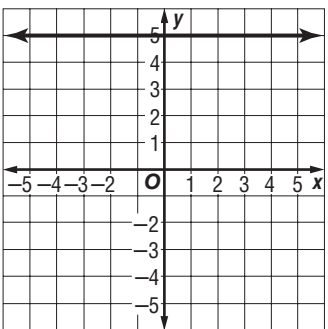
  A As *x* decreases, *y* remains constant.
  B As *x* increases, *y* increases.
  C As *x* increases, *y* decreases.
  D *x* remains constant as *y* increases.

3 **Describe how the change in *x* affects the change in *y* for the relation shown in the table.**

x	1	2	3	4	5
y	−7	−6	−5	−4	−3

  A As *x* decreases, *y* remains constant.
  B As *x* increases, *y* increases.
  C As *x* increases, *y* decreases.
  D As *x* decreases, *y* decreases.

4 **Describe how the change in *x* affects the change in *y* for the relation shown in the table.**

x	2	2	2	2	2
y	−2	0	2	3	5

  A As *x* increases, *y* remains constant.
  B As *x* remains constant, *y* increases.
  C As *x* increases, *y* decreases.
  D As *x* decreases, *y* decreases.

5 **Which of the following statements is TRUE for the line on the graph below?**
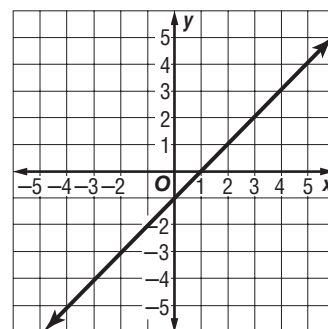
  A As *x* increases, *y* remains constant.
  B As *x* decreases, *y* increases.
  C As *x* increases, *y* decreases.
  D As *x* increases, *y* increases.

Standards Practice

M7A3.d **ALGEBRA** **Students will understand relationships between two variables.** Describe patterns in the graphs of proportional relationships, both direct ($y = kx$) and inverse ($y = \frac{k}{x}$).

1 Describe the graph represented by the table.

x	1	2	3	4	5
y	7	7	7	7	7

A The line will rise to the right.
B The line will rise to the left.
C The line will be a straight horizontal line.
D The line will be a straight vertical line.

2 Describe the graph represented by the table.

x	−1	1	2	3	4
y	2	−2	−4	−6	−8

A The line will rise to the right.
B The line will rise to the left.
C The line will be a straight horizontal line.
D The line will be a straight vertical line.

3 Describe the graph represented by the table.

x	−1	1	2	3	4
y	3	5	6	7	8

A The line will rise to the right.
B The line will rise to the left.
C The line will be a straight horizontal line.
D The graph will be a curve.

4 Describe the graph represented by the table.

x	0	1	2	3	4
y	0	6	12	18	24

A The line will rise to the right.
B The line will rise to the left.
C The line will be a straight horizontal line.
D The line will be a straight vertical line.

5 Describe the graph represented by the table.

x	9	9	9	9	9
y	−2	−1	0	1	2

A The line will be a straight horizontal line.
B The line will rise to the left.
C The line will rise to the right.
D The line will be a straight vertical line.

6 Describe the graph represented by the table.

x	−4	−2	0	2	4
y	2	1	0	−1	−2

A The line will be a straight horizontal line.
B The line will be a straight vertical line.
C The line will rise to the left.
D The line will rise to the right.

Standards Practice

M7D1.a DATA ANALYSIS AND
PROBABILITY Students will pose
questions, collect data, represent
and analyze the data, and interpret
results. Formulate questions and collect data
from a census of at least 30 objects and from
samples of varying sizes.

*Use the information below to answer
Questions 1–3.*

Arturo and Melanie want to find out what
people in their community know about movies
that feature Georgia. They decide to survey
people at the local mall over two weekends.

1 Which of the following questions will
help Arturo and Melanie investigate
their topic?
  A How many movies about Georgia have
  been filmed in the past 10 years?
  B What is your favorite movie that was
  shot in Georgia or features Georgia?
  C How many movies can you list that were
  shot in Georgia or feature Georgia?
  D What is the best-known movie that
  features Georgia?

2 Which group below represents the BEST
sample of the community for Arturo and
Melanie's survey?
  A 30 students and 30 adults who shop at
  the mall
  B 30 students and 30 adults who like to
  go to the movies
  C 60 adults
  D 60 students

3 Arturo wants to survey only their friends.
Melanie disagrees and insists that they
interview people of different age groups.
Which of the following statements BEST
explains Melanie's thinking?
  A Surveying people of different ages
  would represent the population of their
  community accurately.
  B Surveying only their friends would
  create too large a sample.
  C Their friends' taste in movies is similar
  to Arturo and Melanie's.
  D Surveying people of different ages
  would not represent the population of
  their community accurately.

4 Which of the following questions can be
answered by a sample of 20 dogs?
  A What is the best way to walk dogs?
  B How many dogs like to play catch?
  C How often do dog owners run?
  D How many people like dogs?

5 Trina wants to conduct a survey to find
out the three most favorite flavors of
ice cream among 180 seventh-grade
students. Which of the following
questions will BEST help Trina find out
the most favorite ice cream flavors?
  A What is your favorite dessert?
  B How many times during an average
  week do you eat ice cream?
  C What is your favorite ice cream flavor?
  D What flavor of ice cream do you
  currently have in your freezer at home,
  if any?

Standards Practice

M7D1.b **DATA ANALYSIS AND PROBABILITY** **Students will pose questions, collect data, represent and analyze the data, and interpret results.** Construct frequency distributions.

1 **Krista tallied the ages of her seventh-grade classmates.**

Age	Tally	Frequency
11	卌 卌		11
12	卌 卌 卌	15
13						4

What is the relative frequency of 11 years old?

A 0.37

B 0.42

C 0.50

D 0.63

Use the information below to answer Questions 2–4.

Ms. McGrath's math class had the following scores on a 15-question quiz.

> **14, 13, 15, 13, 10, 8, 9, 12, 10, 9,**
> **15, 13, 14, 15, 11, 15, 12, 12, 13, 14**

2 **What is the relative frequency of the score of 13?**

A 0.20

B 0.19

C 0.12

D 0.04

3 **What is the cumulative frequency of the score of 12?**

A 3

B 5

C 6

D 9

4 **Which of the following tables shows a frequency distribution for the quiz scores?**

A

Score	Tally	Frequency
8				2
9				2
10			1
11					3
12				2
13						4
14					3
15			1

B

Score	Tally	Frequency
8			1
9				2
10				2
11			1
12					3
13						4
14					3
15						4

C

Score	Tally	Frequency
8			1
9				2
10			1
11			1
12				2
13						4
14					3
15						4

D

Score	Tally	Frequency
8			1
9				2
10			1
11			1
12				2
13						4
14		0
15	卌 ||	7

Standards Practice

M7D1.b **DATA ANALYSIS AND PROBABILITY** (continued)

4 Julian helped his uncle with the peach harvest for one month. He kept a record of the number of peaches he harvested, shown in the table below.

Peaches Collected	Frequency	Relative Frequency
98	2	8%
101	5	21%
103	4	
105	6	
108	3	
110	4	

Which of the following percentages shows the relative frequency of Julian's harvesting 105 peaches in a given day?

A 6%   **B** 17%

C 25%   **D** 60%

Use the information below to answer Questions 5–7.

Ms. Williams recorded the following number of absences from science class each day during the month of February.

0, 2, 2, 1, 0, 1, 4, 5, 5, 4, 3, 3, 1, 2, 0, 0, 1, 2, 1

5 What is the relative frequency of 3 absences?

A 0.09   **B** 0.11

C 0.18   **D** 0.21

6 What is the cumulative frequency of 2 absences?

A 4   **B** 5

C 10   **D** 13

7 Which of the following tables shows a frequency distribution for the absences?

A

Absences	Tally	Frequency
0					3
1						4
2					3
3				2
4						4
5					3

B

Absences	Tally	Frequency
0							5
1						4
2					3
3				2
4				2
5					3

C

Absences	Tally	Frequency
0						4
1							5
2						4
3				2
4				2
5				2

D

Absences	Tally	Frequency
0				2
1						4
2							5
3				2
4				2
5						4

Name   Date

Standards Practice

M7D1.c **DATA ANALYSIS AND PROBABILITY Students will pose questions, collect data, represent and analyze the data, and interpret results.** Analyze data using measures of central tendency (mean, median, and mode), including recognition of outliers.

Use the information to answer Questions 1–3.

At the 1996 Summer Olympics held in Atlanta, Michael Johnson set a world record for the fastest time in the 200-meter race. His time was 19.32 seconds. Listed below are the runners' times in seconds in a 200-meter heat.

19.72, 20.05, 20.51, 21.10, 19.98, 20.22, 19.83, 19.93

1 What is the mean time?
  A 24.48 sec
  B 22.42 sec
  C 21.42 sec
  D 20.17 sec

2 What is the median time?
  A 19.72 sec
  B 20.02 sec
  C 21.42 sec
  D 20.22 sec

3 What is the range of times?
  A 21.20 sec
  B 19.72 sec
  C 1.38 sec
  D 0.79 sec

Use the information to answer Questions 4–6.

The list shows recent home sales in the Valdosta area.

$104,900; $176,100; $213,900; $158,900; $213,900; $169,900; $132,500

4 What is the median sale price?
  A $169,900
  B $165,900
  C $132,500
  D $104,900

5 What is the mode sale price?
  A $104,900
  B $165,900
  C $169,900
  D $213,900

6 What is the mean sale price?
  A $140,119
  B $146,503
  C $158,421
  D $167,157

Use the information to answer Questions 7 and 8.

The weights of 5 dogs are 33.1, 48.0, 21.5, 19.6, and 58.8 pounds.

7 What is the mean weight of the dogs?
  A 34.7 lb   **B** 36.2 lb
  C 39.0 lb   **D** 41.1 lb

8 What is the median weight of the dogs?
  A 19.6 lb   **B** 21.5 lb
  C 33.1 lb   **D** 58.8 lb

Standards Practice

M7D1.d **DATA ANALYSIS AND PROBABILITY** **Students will pose questions, collect data, represent and analyze the data, and interpret results.** Analyze data with respect to measures of variation (range, quartiles, interquartile range).
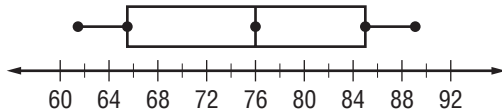
The average maximum temperature in degrees Fahrenheit in Savannah by month is found in the table below.

J	F	M	A	M	J
61	63	68	75	82	86
J	**A**	**S**	**O**	**N**	**D**
89	88	84	77	69	61

1 **What is the range of temperatures throughout the year in Savannah?**
A 28°F   **B** 61°F
C 75°F   **D** 89°F

Use the information below to answer Questions 2 and 3.

Ruby made a box-and-whisker plot of the average maximum temperatures.

2 **What is the lower quartile of the data set?**
A 61°F   **B** 65.5°F
C 76°F   **D** 85°F

3 **What is the upper quartile of the data set?**
**A** 61°F   **B** 65.5°F
C 76°F   **D** 85°F

Use the information below to answer Questions 4–6.

Ms. Marshall's seventh-grade students had a food drive during the month of November. Students brought in canned goods for the local food pantry. The list shows the number of cans brought in by different students.

9, 7, 7, 8, 10, 2, 16, 10, 8, 6, 9, 9, 11, 14, 27, 14, 17, 15, 9, 13, 14

4 **What is the median number of cans brought in by the students in Ms. Marshall's class?**
A 2   **B** 10
C 25   **D** 27

5 **Which of these box-and-whisker plots matches the data set?**

A

B

C

D
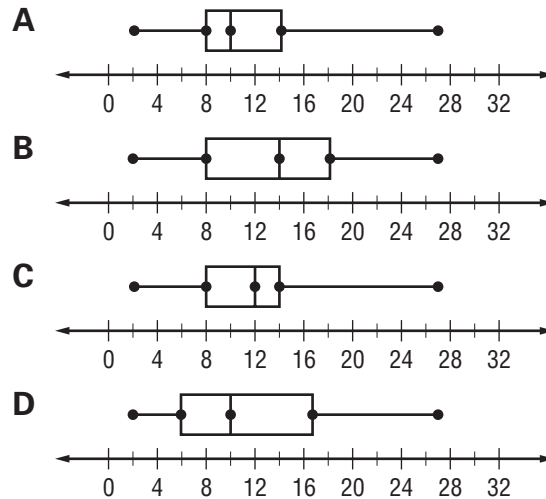
6 **An outlier is any point that is greater than the upper quartile or less than the lower quartile by more than 1.5 times the interquartile range. How many outliers are in the data set?**
A 0   **B** 1
C 2   **D** 3

Standards Practice

M7D1.e **DATA ANALYSIS AND PROBABILITY** **Students will pose questions, collect data, represent and analyze the data, and interpret results.** Compare measures of central tendency and variation from samples to those from a census. Observe that sample statistics are more likely to approximate the population parameters as sample size increases.

1 Serina was researching the climatic conditions of Athens. The table shows the rainfall for the same three-month period in 2003, 2004, and 2005.

	April	May	June	3-month Average
2003	2.52	7.98	5.98	5.49
2004	0.87	1.32	3.76	2.01
2005	5.87	2.67	10.25	6.26

What can Serina do to know which 3-month average is MOST representative of the rainfall in Athens during the months of April, May, and June?

A Spend three months in Athens and record the rainfall.

B Look at the three-month average rainfall for the year 2002.

C Look for the three-month average rainfall for the past 30 years.

D Look at the three-month average rainfall for the same years in Atlanta.

2 During a class experiment, Mr. Bonomo poured 100 purple and 100 white marbles into a large jar and mixed the two groups. Vicki drew 15 marbles from the jar without looking. She counted 10 purple marbles and 5 white marbles. How do the percents of purple and white marbles that Vicki drew compare to the percents of purple and white marbles in the jar?

A The percent of purple marbles that Vicki drew is greater than that of the purple marbles in the jar.

B The percent of purple marbles that Vicki drew is less than that of the purple marbles in the jar.

C The percent of white marbles that Vicki drew is greater than that of the white marbles in the jar.

D The percent of white marbles that Vicki drew is equal to that of the white marbles in the jar.

3 LaDawn wants to find out how far from school the students in her middle school live. She asked five of her friends and calculated an average distance of 1.3 miles. Why might LaDawn's results NOT represent the average distance that the students live from school?

A LaDawn's friends did not provide accurate information.

B LaDawn did not record the results accurately.

C LaDawn's sample size is too small to be representative.

**D** LaDawn did not ask questions that could give her the information she needed.

Standards Practice

M7D1.f DATA ANALYSIS AND
PROBABILITY **Students will pose
questions, collect data, represent
and analyze the data, and interpret
results.** Analyze data using appropriate
graphs, including pictographs, histograms,
bar graphs, line graphs, circle graphs, and line
plots introduced earlier, and using box-and-
whisker plots and scatter plots.

*Use the information below to answer
Questions 1–3.*

**This line graph shows the progress of Duan
and Ariya as they ran in an 800-meter race.**
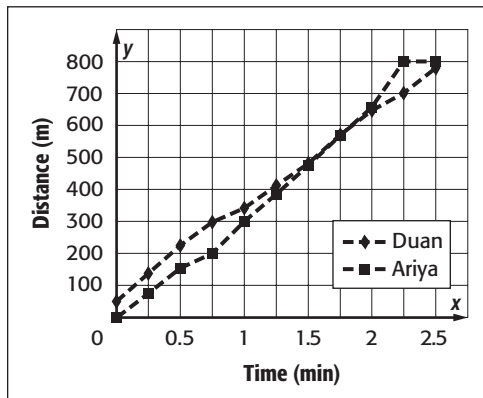
**1 Which runner was ahead and by how
far after 1 minute?**
  A Ariya, by about 40 meters
  B Ariya, by about 350 meters
  C Duan, by about 350 meters
  D Duan, by about 40 meters

**2 Which period of time represents the
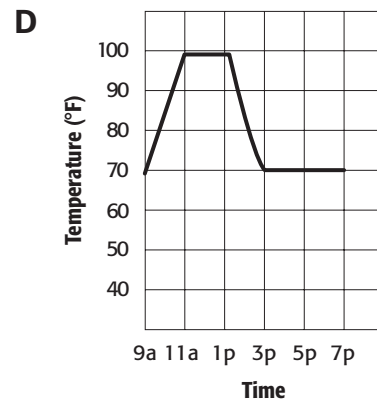slowest progress for either runner?**
  A Ariya, between 0 and 15 seconds
  B Ariya, between 2 minutes and 2 minutes,
  15 seconds
  C Duan, between 45 seconds and 1 minute
  D Duan, between 2 minutes, 15 seconds
  and 2 minutes, 30 seconds

**3 Which statement BEST matches the
graph?**
  A Duan ran very fast at the start of
  the race.
  B Duan had about a 50-meter head start.
  C Duan won the race.
  D Duan passed Ariya after about
  1 minute, 45 seconds.

*Use the information in the graph below
to answer Questions 4 and 5.*

**Georgia is known as the Peach State, but it
is the top grower of peanuts in the United
States. The circle graph shows the states that
produce peanuts in the United States.**

**Peanut Production in
the United States (2004)**
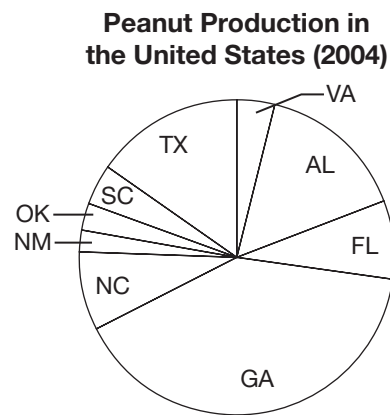
**4 Approximately what percent of all U.S.
peanut production comes from Georgia?**
  A 33%   **B** 40%
  C 50%   **D** 66%

**5 The peanut production in the United
States in 2004 was approximately
4,300,000,000 pounds. About how many
pounds of peanuts did Georgia produce?**
  A 2,800,000,000 lb
  B 2,150,000,000 lb
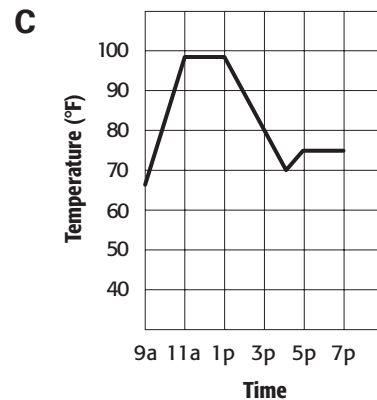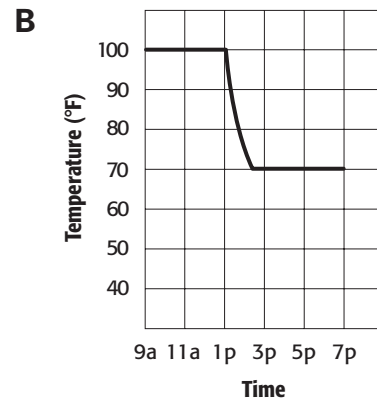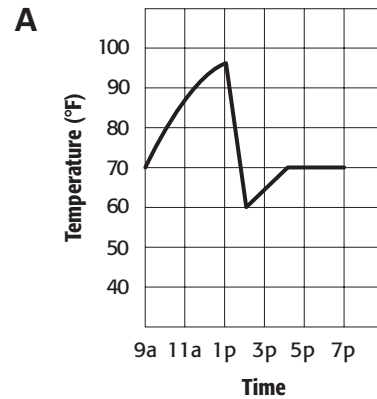 **C** 1,700,000,000 lb
  D 1,400,000,000 lb

Standards Practice

M7D1.g **DATA ANALYSIS AND PROBABILITY** **Students will pose questions, collect data, represent and analyze the data, and interpret results.** Analyze and draw conclusions about data, including describing the relationship between two variables.

1 **Mr. Lebrun works at a local library. One summer day, he arrived at work at 9:00 A.M. As the sun shone through the windows, he noticed that it was getting warmer and warmer inside. At noon, it was so hot that he opened the windows and decided to call a technician to see what was wrong with the air conditioning. The technician arrived, and by 1:00 P.M. she had the system working again. The temperature dropped quickly, and soon the library was too cold. Mr. Lebrun adjusted the thermostat so that the inside temperature would be slightly warmer for the rest of the day.**

Which of the following graphs could represent the temperature of the library throughout the day?
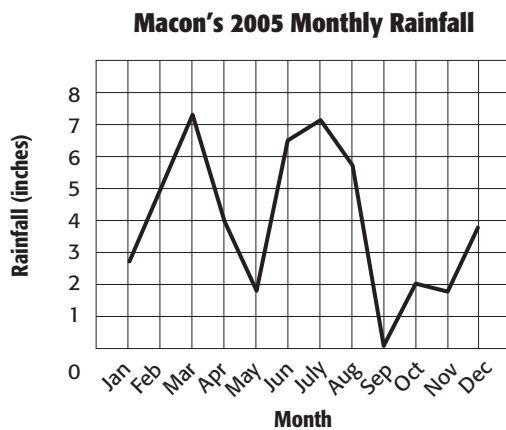
A

B

C

D

Standards Practice

Use the information in the graph that follows to answer Questions 2–3.

Jackie made the following graph that shows the 2005 monthly rainfall amount in Macon.

Macon's 2005 Monthly Rainfall

2 Based on the information in the graph, which of the following conclusions is TRUE?

A There was more rainfall during the fall months than during the summer months.

B The rainfall was lower in September than in May.

C June and July had more rainfall than August and September combined.

D The lower rainfall in January was due to colder temperatures.

3 Jackie wanted to determine the average monthly rainfall in Macon for 2005. She concluded that the average monthly rainfall was between 2 inches and $2\frac{1}{2}$ inches per month. Does her conclusion accurately represent the information in the graph?

A Yes; the average rainfall was about 2 inches.

B Yes; the average rainfall was about $2\frac{1}{2}$ inches.

C No; the average rainfall was about 3 inches.

D No; the average rainfall was about 4 inches.

The graph below shows how many miles Denise and her father drove in 1 hour on a trip.

Denise's Trip
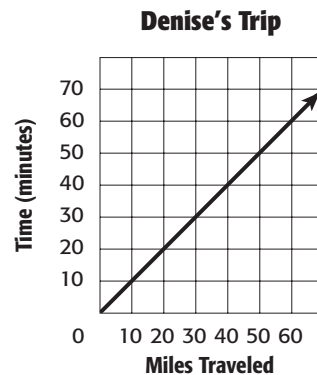
4 Based on the information in the graph, which of the following statements is TRUE?

A Denise's father stopped frequently during the 60 minutes.

B Denise's father drove more slowly the longer he drove.

C Denise's father was driving at about 60 miles per hour.

D Denise's father drove faster the longer he drove.

Sample Test

Choose the best answer for each question.

1 Kelly worked on her math homework for $1\frac{1}{4}$ hours and then worked on her social studies homework for $\frac{2}{3}$ hour. How many hours did she spend working on her homework?

A $1\frac{11}{12}$ hours

B $1\frac{3}{7}$ hours

C $\frac{10}{12}$ hours

D $\frac{7}{12}$ hours

2 According to the 2000 Census, the population of Georgia was approximately 8.19 million. In 1950, the population of Georgia was approximately 3.44 million. How much greater was the population of Georgia in 2000 than in 1950?

A 11.63 million

B   9.26 million

**C**   4.75 million

D   2.38 million

3 One chocolate bar weighs $1\frac{1}{3}$ ounces. What is the weight of 8 chocolate bars?

A $10\frac{2}{3}$ oz.

B $8\frac{2}{3}$ oz.

C $8\frac{1}{3}$ oz.

D $1\frac{8}{3}$ oz.

4 The average cost of a new shirt at the mall is \$35. Which of the following CANNOT be true?

A The cost of four shirts is greater than \$35.

B Some shirts cost less than \$15.

C Each shirt costs exactly \$35.

D All of the shirts cost more than \$35.

5 Find the coordinates of point *C* after the figure is reflected over the *y*-axis.

A $(-1, 4)$

B $(2, -1)$

C $(-2, 1)$

D $(-5, 2)$

Go on
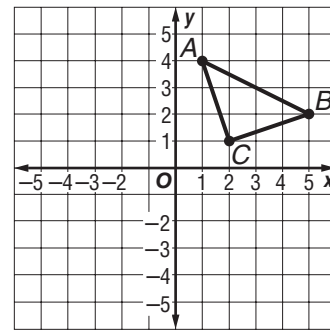
6 A 3-pound bag of Vidalia onions costs $2.70 at the local supermarket. Use the equation $3c = 2.70$ to solve for c, the cost per pound.

A $\dfrac{\$0.70}{\text{pound}}$

B $\dfrac{\$0.90}{\text{pound}}$

C $\dfrac{\$2.67}{\text{pound}}$

D $\dfrac{\$8.10}{\text{pound}}$

7 Which symbol makes the statement TRUE?

$$\left|-\tfrac{1}{3}\right| \underline{\qquad} \left|\tfrac{1}{4}\right|$$
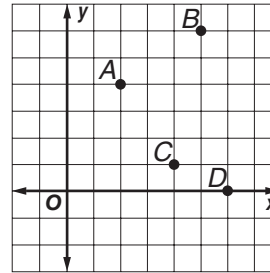
A $>$

B $<$

C $=$

D $\geq$

8 Below are the average scores of eight youth basketball teams that are part of the Junior Hawks initiative. What is the range of the scores?

68.2, 71.6, 69.5, 72.6,
66.9, 70.4, 72.8, 68.4

A 3.7

B 4.9

C 5.9

D 6.3

9 Which point in the graph below is located at (4, 1)?

A A

B B

C C

D D

10 Which points show the translation $(x, y) \rightarrow (x + 2, y - 1)$?

A $A(3, 4), A'(4, 2)$

B $A(3, 4), A'(1, 5)$

C $A(3, 4), A'(5, 3)$

D $A(3, 4), A'(2, 6)$

11 In the following data set, which measure of central tendency is the GREATEST?

2, 3, 4, 7, 9

A mean

B median

C mode

D range

Go on

Sample Test (continued)

12 What is the median of the following data set?

$$50, 45, 59, 40, 50, 48$$

A 48
B 49
C 50
D 51

13 The scale of an architectural plan for a new park in Columbus is 1 inch : 4 feet. What will be the area of the actual park if the area of the park in the plan is 10 square inches?

A 160 ft²
B 120 ft²
C 80 ft²
D 40 ft²

14 What decimal is equivalent to 0.5%?

A 0.005
B 0.05
C 0.55
D 5.0

15 Evaluate.

$$4\frac{1}{2} \div \frac{3}{4}$$

A 3
B $4\frac{3}{8}$
C $4\frac{2}{3}$
D 6

16 Simplify.

$$(3c - 2) - (5c + 3)$$

**A** $8c + 1$
B $8c - 5$
C $-2c + 1$
D $-2c - 5$

17 Kendra wants to buy a new pair of jeans for $52. She has $8 already and plans to save $5 per week. How many weeks will it take her to save enough money?

A 8 weeks
B 9 weeks
C 10 weeks
D 11 weeks

18 Jenny has 4 more peaches than Janet. Together, they have 12 peaches. Which equation can be used to find how many peaches Janet has?

A $x + 4 = 12$
B $x + 12 = 4$
C $4x + 2 = 12$
D $2x + 4 = 12$

19 A popcorn container in the shape of a cone is 9 inches tall and has a diameter of 6 inches. What is the volume of the cone?
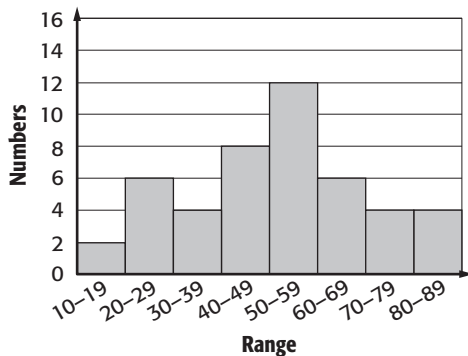

A 27π in³
B 36π in³
C 54π in³
D 81π in³

Go on
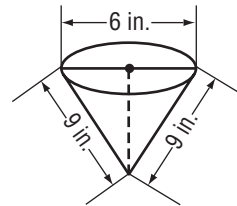
20 What is the range of the median in the histogram?

Range

- **A** 20–29
- **B** 30–39
- **C** 40–49
- **D** 50–59

21 The ending balances for Francine's bank account over five months are listed below. What is her average monthly ending balance?

$190, $110, −$30, $90, $140

- **A** $100
- **B** $106
- **C** $110
- **D** $114

22 A soup can is 4 inches tall and has a diameter of $1\frac{1}{2}$ inches. What is the volume of the can?

- **A** $\frac{9}{4}$ in³
- **B** 6 in³
- **C** $\frac{9}{4}\pi$ in³
- **D** 6π in³

23 A map of Atlanta has a scale of 1 inch : 8 miles. Ken locates his house on the map, and it is 2.5 inches from his school. How many miles is Ken's house from his school?

- **A** 3.2 miles
- **B** 10.5 miles
- **C** 20 miles
- **D** 24 miles

24 A salesman receives a base salary of $200 per week and earns $50 commission for each stereo system he sells. How many stereo systems must he sell to earn $600 in one week?

- **A** 6 stereo systems
- **B** 8 stereo systems
- **C** 10 stereo systems
- **D** 12 stereo systems

25 Triangle *ABC* is plotted at *A*(1, 3), *B*(5, 3), and *C*(3, 0). If this triangle is dilated about the origin by a scale factor of 2, where will *B′* be?

- **A** (10, 6)
- **B** (2, 6)
- **C** (6, 0)
- **D** (6, 6)

Go on

26 Ms. Marple made the box-and-whisker plot of the student scores on the most recent math test. What percentage of students received a 90 or above on their test?
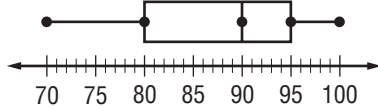

A 25%

B 50%

C 75%

D 100%

27 A box of crackers is 8 inches tall, 5 inches wide, and $1\frac{1}{2}$ inches deep. What is the surface area of the box?

A $14\frac{1}{2}$ square inches

B 60 square inches

C 55 square inches

D 119 square inches

28 Which quantity is equal to $-(-|-4|\times|4|)$?

A $-|-16|$

B $-|16|$

C -16

D 16

29 Which of the following shows $4(2x + 3) = -12$ simplified?

A $6x + 3 = -12$

B $6x + 12 = -12$

C $8x + 3 = -12$

D $8x + 12 = -12$

30 Out of 12,000 video games tested, 60 are defective. How many video games out of 240,000 would you expect to be defective?

A 1,200

B 120

C 60

D 0

31 Determine which net CANNOT be folded into a cube.

A

B

C

D

Go on
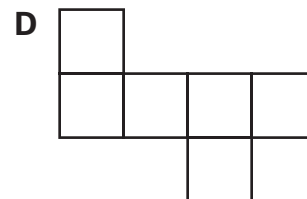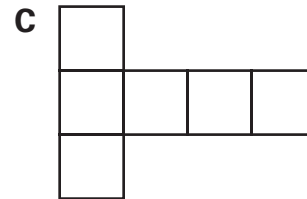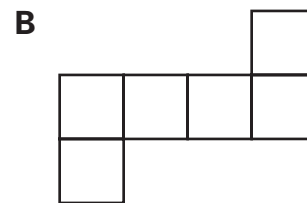
32 In which quadrant is the point $(6, -2)$?
A I
B II
C III
D IV

33 Which letter does NOT have rotational symmetry?
A H
B I
C S
D K

34 $\triangle ABC \cong \triangle DEF$. Which side in $\triangle DEF$ corresponds to $\overline{AC}$?
A $\overline{DE}$
B $\overline{EF}$
C $\overline{DF}$
D $\angle D$

35 A rectangle that is 12 centimeters long and 18 centimeters wide is similar to a rectangle that is 8 centimeters long. How wide is the second rectangle?
A 5 cm
B 9 cm
C 12 cm
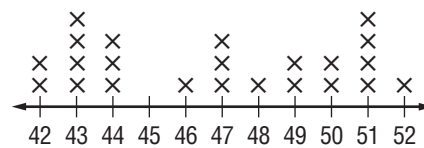**D** 15 cm

36 Evaluate $5ab - 2a + 1$ if $a = 2$ and $b = 1$.
A 3
B 5
C 7
D 8

37 Simplify.
$$(4x + 2) - (7 - 2x)$$
A $6x - 5$
B $2x + 5$
C $11x$
D $6x + 9$

38 Which frequency table matches the line plot shown below?

A 42, 42, 43, 43, 43, 43, 43, 44, 44, 44, 46, 47, 47, 47, 48, 49, 49, 50, 50, 51, 51, 51, 51

B 42, 42, 43, 43, 43, 43, 44, 44, 44, 46, 47, 47, 47, 48, 49, 49, 50, 50, 51, 51, 51, 51, 52

C 42, 43, 43, 43, 43, 43, 43, 44, 44, 44, 46, 47, 47, 47, 48, 49, 49, 50, 50, 51, 51, 51, 52

D 42, 42, 43, 43, 43, 43, 44, 44, 44, 45, 47, 47, 47, 48, 49, 49, 50, 50, 51, 51, 51, 51, 52

39 Joe is running in the 5-kilometer Leprechaun Road Race in Dublin, Georgia. Which equation can be used to show the relationship between kilometers K and miles m?
A $m = 1K$
B $K = 0.6m$
C $m = 1.6K$
D $K = 1.6m$

Go on

Sample Test (continued)

40 Which two fractions are equivalent to $\frac{1}{4}$?

A $\frac{2}{8}, \frac{-2}{-8}$

B $\frac{2}{8}, \frac{-4}{-12}$

C $\frac{5}{25}, \frac{-2}{-8}$

D $\frac{4}{12}, \frac{-10}{-40}$

41 A carpenter is building a deck behind a house. The deck will be 24 feet in length. If the area of the deck must be less than 385 square feet, which width will make the area closest to 385 square feet?

A $16\frac{1}{2}$ ft

B 16 ft

C $15\frac{1}{2}$ ft

D 15 ft

42 The student government sold $730 in tickets for the Peach Blossom dance. If the tickets were $5 each, which expression CANNOT be used to solve for *t*, the number of tickets sold?

A $5t = 730$

B $t = \frac{730}{5}$

C $5 = \frac{730}{t}$

D $730 = \frac{t}{5}$

43 Determine which relation is expressed in the table.

x	y
0	0
2	4
4	8
6	12

A $y = x + 2$

B $y = x$

C $y = \frac{1}{2}x$

D $y = 2x$

44 Which expression represents the value of *n* nickels?

A $5n$

B $0.5n$

C $0.05n$

D $0.05 + n$

45 Which figure has a larger area?

A the square

B the circle

C The circle and the square have the same area.

D There is not enough information.

Go on

Sample Test (continued)

46 An 8-ounce can of soda contains 105 calories. About how many calories are in a 20-ounce bottle?

A 262 calories

B 133 calories

C 125 calories

D 1.5 calories

47 The bill at a restaurant for a group of friends is $43.50. If the group splits the bill evenly and each person pays $8.70, how many people are in the group?

A 4

B 5

C 6

D 7

48 The graph below represents the dilation from $ABCD$ to $A'B'C'D'$. What is the scale factor of the dilation?
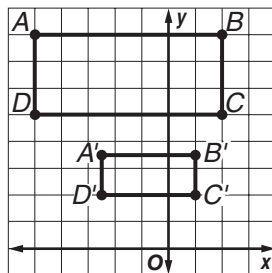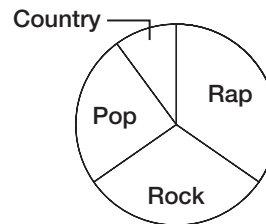

A 2

B 1

C $\frac{1}{2}$

D $\frac{1}{4}$

49 Simplify the expression.

$$5x - 3z + 4$$

A $4 - 3z + 2x - 3x$

B $5(x - z) + 4$

C $2z + 4(x + 1) - 5z - x$

D $4(x + 1) - 3z + x$

50 The percent of students who prefer different types of music is shown in the circle graph below. Approximate the percent of students who prefer pop music.

A 10%

B 25%

C 33%

D 50%

51 Hot dogs come in packages of 10, and hot dog rolls come in packages of 12. What is the minimum amount of packages of each that Yanya must buy to get an equal number of hot dogs and rolls?

A 5 packages of hot dogs, 6 packages of rolls

B 6 packages of hot dogs, 5 packages of rolls

C 10 packages of hot dogs, 12 packages of rolls

D 12 packages of hot dogs, 10 packages of rolls

Go on

52 What type of correlation would a graph of the data points have?

Year	Admissions (millions)
2002	22.4
2003	20.5
2004	18.6
2005	16.2

A no correlation
B positive correlation
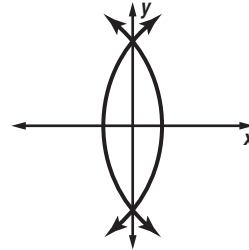**C** negative correlation
D linear correlation

53 Write an expression to represent 4 times a person's weight w in pounds.
A $4 + w$
B $4 - w$
C $4w$
D $\frac{4}{w}$

54 If 300 sheets of paper were stacked one on top of another, what three-dimensional figure would be formed?
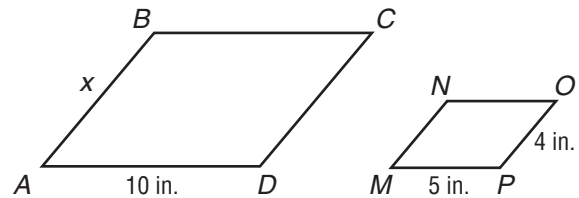**A** a square pyramid
B a rectangular prism
C a cone
D a cylinder

55 Which construction is represented in the diagram below?

A bisecting an angle
B constructing parallel lines
C bisecting a line
D copying a segment

56 In the diagram below, $\square ABCD \sim \square MNOP$. Find x.

A 10 in.
B 9 in.
C 8 in.
D 7 in.

57 Which list is in order from GREATEST to LEAST?
A $-\frac{1}{4}, -\frac{1}{8}, -0.75, -0.625$
B $-\frac{1}{4}, -\frac{1}{8}, -0.625, -0.75$
C $-\frac{1}{8}, -\frac{1}{4}, -0.75, -0.625$
D $-\frac{1}{8}, -\frac{1}{4}, -0.625, -0.75$

Go on

58 Which coordinate represents the translation of point *C*(3, 4) 2 units left and 4 units down?

  A *C*′(1,0)
  B *C*′(5,8)
  C *C*′(5,1)
  D *C*′(1,8)

59 How many lines of symmetry does a square have?

  A 2
  B 4
  C 6
  D 8

60 A belt that costs $11 is on sale for 10% off. What is the sale price of the belt?

  A $9.10
  B $9.90
  C $10.00
  D $10.10

Stop

Countdown to CRCT
18 Weeks to CRCT

Monday

1 What is the next term in the sequence?

$$-5, -1, 3, 7, 11, \ldots$$

- **A** 14
- **B** 15
- **C** 16
- **D** 17

2 Lisa's basketball team has scored 43, 55, 39, 42, 46, 60, and 54 points in its first seven games. What is the median number of points?
- **A** 46 points
- **B** 48 points
- **C** 52 points
- **D** 55 points

Tuesday

3 What is the common ratio of the geometric sequence $\frac{1}{32}, \frac{1}{8}, \frac{1}{2}, 2, 8, \ldots$?

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

4 Carmen's quiz average this quarter on five quizzes is 17 points. If her scores on four of those quizzes were 18, 16, 17, and 15 points, what was her score on the fifth quiz?
- **A** 20 points   **B** 19 points
- **C** 18 points   **D** 17 points

Wednesday

5 The table shows the ages of players on Maria's soccer team. In a frequency table, how many tally marks should be used to show the number of 12-year-olds on the team?

- **A** 3
- **B** 6
- **C** 8
- **D** 9

Ages of Soccer Players				
12	11	12	13	12
11	12	12	12	11
13	11	12	12	12

6 Suppose that there were 22 cloudy days last month. How many clouds should you draw on a pictograph for that month?
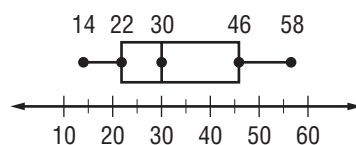
 = 4 cloudy days

- **A** 4 clouds   **B** 4.5 clouds
- **C** 5 clouds   **D** 5.5 clouds

Thursday

7 What is the interquartile range of the data shown in the box-and-whisker plot?
- **A** 24
- **B** 32
- **C** 36
- **D** 44

14 22 30   46 58

10 20 30 40 50 60

Friday

8 Which measure is MOST affected by an outlier?
- **A** mean
- **B** median
- **C** middle
- **D** mode

Countdown to CRCT
17 Weeks to CRCT

Monday

1 What is the median number of hours spent studying for the math test?

A 6 h
B 7 h
C 8 h
D 9 h

2 To determine if the tangerines in 40 crates are fresh, a grocery store employee samples 5 tangerines from the top of the first crate on the truck. What kind of sample does this represent?

A convenience sample
B random sample
C stratified sample
D systematic sample

Tuesday

3 There are 26, 28, 27, 30, 26, 29, and 32 students in 7 homerooms. What is the mode of these data?

A 24 students
B 25 students
C 26 students
D 27 students

4 The state tree of Georgia is the live oak, which can grow to a height of 50 feet. Suppose that the heights of several oak trees near the school playground are 42 feet, 48 feet, 45 feet, 36 feet, 40 feet, 43 feet, and 41 feet. What is the range in heights?

A 12 ft
B 14 ft
C 15 ft
D 18 ft

Wednesday

5 The average high temperature in Savannah during January is 61°F. Suppose that the high temperatures during a week in January were 62°F, 64°F, 62°F, 61°F, 60°F, 57°F, and 58°F. What is the range in these temperatures?

A 8°F
B 7°F
C 6°F
D 5°F

6 If point M lies on the perpendicular bisector of $\overline{AB}$, which statement about $\overline{AM}$ and $\overline{BM}$ is true? **(Lesson 6-3b)**

A $\overline{AM} = 2\overline{BM}$

B $\overline{AM} = \overline{BM}$

C $\overline{AM} = \frac{1}{2}\overline{BM}$

D $\overline{AM} = \frac{1}{4}\overline{BM}$

Thursday

7 Which number is closest to 0 on a number line?

A −8
B −5
C 6
D 10

Friday

8 Which integer has the largest absolute value?
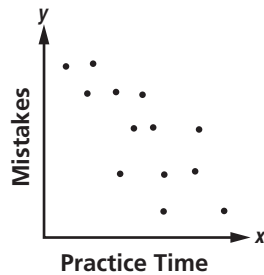
A −33
B −5
C 3
D 2

Countdown to CRCT
16 Weeks to CRCT

Monday

1 The scatter plot shows the number of mistakes made playing the piano after different amounts of practice. Fill in the blank. As the amount of time spent practicing increases, the number of mistakes _____.

A decreases
B doubles
C increases
D stays the same

2 Find $-12 + (-5) + 10 + 4 + (-6)$.

A -9
B -6
C 2
D 7

Tuesday

3 Find $-7 + 5 + (-4) + 10$.

A -6
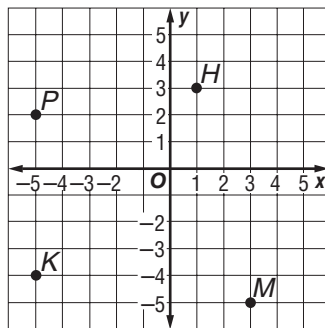**B** -2
C 1
D 4

4 Suppose that the temperature is changing at a rate of $-3°F$ per hour. At this rate, how long will it take for the total temperature change to be $-15°F$?

A 4 h
B 5 h
C 6 h
D 7 h

Wednesday

5 Which point lies in Quadrant II?

A Point H
B Point K
C Point M
D Point P

6 Clarence wants to predict the mean number of peanuts in a package. Which of the following sample sizes would give him the most accurate results?

A 2 packages
B 5 packages
C 10 packages
D 25 packages

Thursday

7 Find $-5(4)(-3)$.

A -60
B -30
C 30
D 60

Friday

8 What is the absolute value of -5?

A -5
B -1
C 1
D 5

Countdown to CRCT
15 Weeks to CRCT

Monday

1 Suppose that you begin at the origin of a coordinate grid and travel 8 units up and 5 units left. What are your coordinates?

A $(5, -8)$

B $(8, -5)$

C $(-8, 5)$

D $(-5, 8)$

2 Which integer has the smallest absolute value?

A -11

B -3

C 2

D 15

Tuesday

3 Evaluate the expression $\frac{-28}{m+n} + 5m$ if $m = -3$ and $n = -4$.

A -15
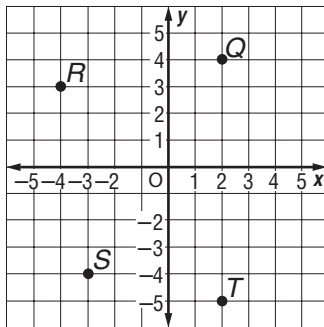
B -11

C -4

D 7

4 A water pump can pump 6.5 gallons of water each minute. Write an equation to show how many gallons, *g*, are pumped in *m* minutes.

A $g = m - 6.5$

B $g = 6.5 + m$

C $g = 6.5m$

D $g = m \div 6.5$

Wednesday

5 What are the coordinates of point *R*?

A $(-4, -3)$

B $(3, -4)$

C $(-4, 3)$

D $(-3, 4)$

6 Write an equation to model the relationship shown in the table.

A $w = 9.25h$

B $w = 8.75h$

C $w = 7.5(h + 1)$

D $w = 8h + 3.75$

Hours (h)	Wages (w)
5	$43.75
10	$87.50
15	$131.25
20	$175.00
25	$218.75

Thursday

7 Which number is farthest from 0 on a number line?

A -1

B 0

C 2
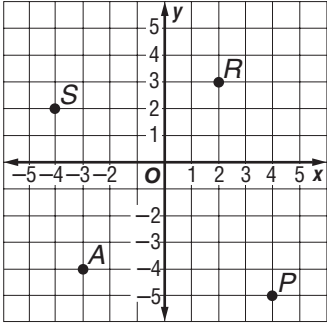
D 3

Friday

8 How can you write the phrase "6 points less than average" as an algebraic expression?

A $a + 6$

B $a - 6$

C $6 - a$

D $6a$

Countdown to CRCT
14 Weeks to CRCT

Monday

1 Suppose that a record low temperature for a region is −12°F. How many degrees below freezing (32°F) is this?
- **A** 44°F
- **B** 38°F
- **C** 26°F
- **D** 20°F

2 How can you write the phrase "4 pounds more than a weight" as an algebraic expression?
- **A** $4w$
- **B** $w + 4$
- **C** $w − 4$
- **D** $w ÷ 4$

Tuesday

3 Solve $54 = 28 + r$.
- **A** 26
- **B** 32
- **C** 36
- **D** 82

4 Georgia was first chartered as a colony in 1732. It became the fourth state of the Union after ratifying the U.S. Constitution in 1788. For how many years was Georgia a colony?
- **A** 42 years
- **B** 54 years
- **C** 56 years
- **D** 66 years

Wednesday

5 Antoine went to the store to buy some T-shirts. Each shirt costs $12. If he buys two shirts, he can get the second one for half price. How much will he save per shirt if he buys two shirts?
- **A** $1.50 per shirt
- **B** $3.00 per shirt
- **C** $4.50 per shirt
- **D** $6.00 per shirt

6 Which point has a positive x-coordinate and a negative y-coordinate?
- **A** point A
- **B** point P
- **C** point R
- **D** point S

Thursday

7 Solve $−21.2 = −5.3f$.
- **A** 3
- **B** 3.5
- **C** 4
- **D** 4.5

Friday

8 Which type of graph is best for showing the number of items in specific categories?
- **A** bar graph
- **B** circle graph
- **C** line graph
- **D** line plot

Countdown to CRCT
13 Weeks to CRCT

Monday

1 If you subtract 3,000 from five times the population of Brunswick, the result is 75,000. What is the population of Brunswick?

A 12,500
B 13,750
C 15,600
D 18,200

2 Solve $12 - d = 15$.

A 27
B 3
C −3
D −27

Tuesday

3 The state insect of Georgia is the honeybee. Honeybees beat their wings about 190 times per second while flying. Which expression shows how often a honeybee beats its wings in s seconds?

A $190s$
B $190 \div s$
C $s + 190$
D $s - 190$

4 Julio is driving at an average rate of 58 miles per hour. Write an equation to show the total distance driven, d, after h hours.

A $d = h - 58$
B $d = 58h$
C $d = h + 58$
D $d = 58 \div h$

Wednesday

5 Rodrigo has an online gift certificate worth $60. He wants to buy some DVDs that cost $18 each. If there is a $6 shipping and handling fee for each order, how many DVDs can Rodrigo buy?

A 2
B 3
C 4
D 5

6 In the 2000 U.S. Census, the population of Macon was 38,507 greater than Marietta. If the population of Marietta was 58,748, what was the population of Macon?

A 108,085
B 97,255
C 76,458
D 20,241

Thursday

7 Eight more than twice a number is 2. What is the number?

A −5
B −3
C 1
D 4

Friday

8 When you divide a number by −6, the result is 7. What is the number?

A 42
B 36
C −28
D −42

Countdown to CRCT
12 Weeks to CRCT

Monday

1 The equation $h - 25 = 671$ represents the height of the Georgia-Pacific Tower skyscraper located in downtown Atlanta. If h is the height of the tower in feet, what is the height?

A 646 ft

B 696 ft

C 722 ft

D 738 ft

2 What is the absolute value of 0.1?

A -0.1

B 0

C 0.1

D 1

Tuesday

3 Which line has the steepest slope?

A $y = x$

B $y = 4x$

C $y = 9x$

D $y = 12x$

4 How can you write the phrase "80 stickers divided equally among f friends" as an algebraic expression?

A $80f$

B $\dfrac{f}{80}$

C $\dfrac{80}{f}$

D $f - 80$

Wednesday

5 Cindy put 4.5 cups of cat food in her cat's bowl on Monday. By Thursday morning the bowl was empty, so she again filled it with 4.5 cups. If the bowl was half empty by Sunday night, how much food did the cat eat during the week?

A 4.5 c

B 6.75 c

C 7.5 c

D 9 c

6 What is the slope of the line through the points shown in the graph?

A $\dfrac{1}{2}$

B 1

C $1\dfrac{1}{2}$

D 2

Thursday

7 Paul purchased a CD player and 3 CDs for $66. The cost of the CD player was $30. What was the cost of each CD?

A $9

B $10

C $12

D $15

Friday

8 If you subtract 38 from twice the amount of inland water in the state of Georgia, the result is 3,000 square miles. How many square miles of inland water are there in the state?

A 1,481 mi^2

B 1,496 mi^2

C 1,519 mi^2

D 1,565 mi^2

Countdown to CRCT
11 Weeks to CRCT

Monday

1 Simplify $4x - 8 + 2x + 3$.

A $4x - 5$

B $6x - 5$

C $6x - 3$

D $6x + 3$

2 Solve $b - 1 = 15 - 3b$.

A -2

B 1

C 3

D 4

Tuesday

3 Simplify $(5x^2 + 4x) + (-2x + 6)$.

A $5x^2 + 6x + 6$

B $5x^2 + 2x + 6$

C $3x^2 + 10x + 6$

D $3x^2 + 10x$

4 Solve $5h + 4 - 3h = 14$.
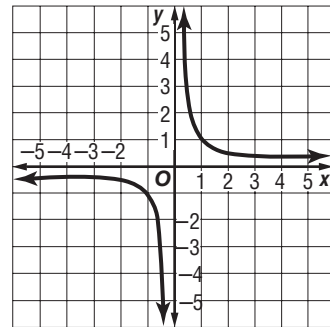
A 5

B 2

C -1

D -4

Wednesday

5 Which function rule represents the values in the table?

A $f(x) = 2x + 3$

B $f(x) = 2x - 2$

C $f(x) = x + 4$

D $f(x) = x - 5$

x	y
-2	-6
-1	-4
0	-2
1	0
2	2

6 Which function is shown in the graph?

A $y = x$

B $y = 2^x$

C $y = \frac{1}{x}$

D $y = x^2$

Thursday

7 Which symbol will make the expression true?

$$5.208 _____ 5.2008$$

A $<$

B $>$

C $=$

D $+$

Friday

8 Simplify $(4v^2 + 3v + 2) - (3v^2 + 6v)$.

A $7v^2 + 9v + 8$

B $v^2 - 9v + 2$

C $v^2 + 3v + 4$

D $v^2 - 3v + 2$

Name _____   Date _____

Countdown to CRCT
10 Weeks to CRCT

Monday

1 Megan works in the school library. She uses the Dewey decimal system to organize books on the shelves. Which list shows the decimals in order from least to greatest?
A 370.015, 370.51, 370.15
B 370.015, 370.15, 370.51
C 370.15, 370.015, 370.51
D 370.15, 370.51, 370.015

2 Which symbol will make the expression true?

$$-4.\overline{63} \rule{1cm}{0.4pt} -4.6\overline{3}$$

A < **B** >
C = **D** +

Tuesday

3 Which symbol will make the expression true?

$$\frac{7}{9} \rule{1cm}{0.4pt} \frac{2}{3}$$

A <
B >
C =
D +

4 About 60% of Georgia is covered with forest. How can you express this percent as a fraction in lowest terms?
A $\frac{3}{5}$ **B** $\frac{4}{15}$
C $\frac{6}{10}$ **D** $\frac{4}{5}$

Wednesday

5 Add $3\frac{3}{8} + 5\frac{1}{4}$.
A $7\frac{1}{8}$
B $7\frac{3}{4}$
C $8\frac{1}{4}$
D $8\frac{5}{8}$

6 Karen has a picture that is $5\frac{1}{4}$ inches long. If she reduces it to $\frac{2}{3}$ of its original size, how long will the smaller picture be?
A 5 in.
B $4\frac{3}{4}$ in.
C $3\frac{1}{2}$ in.
D $3\frac{1}{4}$ in.

Thursday

7 Twice a number plus 20 is 5 more than three times the number. What is the number?
A 8
B 12
C 15
D 20

Friday

8 Which symbol will make the expression true?

$$13.015 \rule{1cm}{0.4pt} 13.012$$

A <
B >
C =
D +
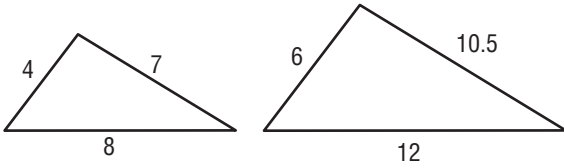
Countdown to CRCT
9 Weeks to CRCT

Monday

1 Subtract $-\frac{2}{3} - \frac{3}{4}$.

A $1\frac{5}{17}$

B $\frac{1}{12}$

C $-\frac{5}{7}$

D $-1\frac{5}{12}$

2 Solve $\frac{w}{12} = -4$.

A 48

B 3

C −3

D −48

Tuesday

3 What is the perimeter of the rectangle?

A 16 in.

B $28\frac{1}{4}$ in.

C 32 in.

D $36\frac{1}{8}$ in.

$5\frac{3}{8}$ in.

$10\frac{5}{8}$ in.

4 Multiply $2\frac{1}{4} \times \frac{2}{9}$.

A 1

B $\frac{1}{2}$

C $\frac{1}{4}$

D $\frac{1}{8}$

Wednesday

5 What is the area of the Georgia state flag below?

A 3 ft²

B $3\frac{3}{4}$ ft²

C 4 ft²

D $4\frac{1}{4}$ ft²

$2\frac{1}{2}$ ft

$1\frac{1}{2}$ ft

6 The highest point in Georgia is Brasstown Bald at an elevation of 4,784 feet. How much less than 1 mile is this point? (Hint: 1 mile = 5,280 feet)

A 288 ft

B 324 ft

C 466 ft

D 496 ft

Thursday

7 Solve $\frac{w}{-3.5} = 4$.

A −14

B −7.5

C 7.5

D 14

Friday

8 The Bombers softball team has scored 4, 8, 6, 5, and 7 runs during the last five games. What is the mean number of runs scored?

A 4 runs per game

B 6 runs per game

C 7 runs per game

D 9 runs per game

Countdown to CRCT
8 Weeks to CRCT

Monday

1 The radius of a circular skating rink is 25 meters. Which expression represents the circumference of the skating rink?

A 625π m

B 125π m

C 50π m

D 25π m

2 Solve $\frac{35}{n} = \frac{20}{4}$.

A 5

B 6

C 7

D 8

Tuesday

3 Georgia has 160 kilometers of coastline. If 1 mile is equal to approximately 1.6 kilometers, about how many miles of coastline does Georgia have? Set up and solve a proportion.

A 75 mi

B 100 mi

C 178 mi

D 256 mi

4 What is 15% of 120?

A 9

B 12

C 18

D 21

Wednesday

5 The two triangles below are similar. What scale factor was used to create the larger triangle?

A 1.2

B 1.5

C 1.75

D 2.2

6 The Georgia State Capitol building in Atlanta stands at a height of about 275 feet. Tony will use the scale 1 inch : 25 feet to build a model of the building. How tall will Tony's model be?

A 7 in.

B 9 in.

C 11 in.

D 12 in.

Thursday

7 About 8,000,000 people live in Georgia. If approximately 400,000 of them are in Atlanta, estimate the percentage of Georgia residents who live in Atlanta.

A 2%

B 5%

C 8%

D 10%

Friday

8 73 is 73% of what number?

A 53

B 73

C 100

D 123

Countdown to CRCT
7 Weeks to CRCT

Monday

1 In a survey of 80 customers at a music store, 20 people responded that country is their favorite kind of music. If the manager orders 500 CDs, how many of them should be country music CDs?

A 75
B 100
C 125
D 150

2 What percent of 24 is 6?

A 25%
B 20%
C 15%
D 10%

Tuesday

3 40 is what percent of 200?

A 10%
B 20%
C 25%
D 40%

4 Suppose that a salesperson earns a 4% commission on a used car that sells for $8,500. How much does the salesperson receive in commission?

A $220
B $275
C $340
D $385

Wednesday

5 The population of Georgia grew by about 26% between 1990 and 2000. If p represents the population in 1990, which expression represents the population in 2000?

A $0.26p$
B $0.74p$
C $1.26p$
D $2p$

6 Jeremy had $60 in his savings account. After making a deposit, his account balance was $75. What was the percent increase in his savings account balance?

A 30%
B 25%
C 20%
D 15%

Thursday

7 What is 40% of 40?

A 8
B 12
C 14
D 16

Friday

8 How much commission is earned on a sale of $480 if the commission rate is 5%?

A $24.00
B $37.50
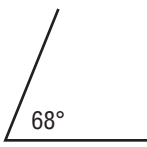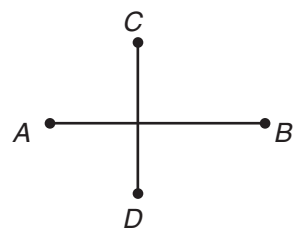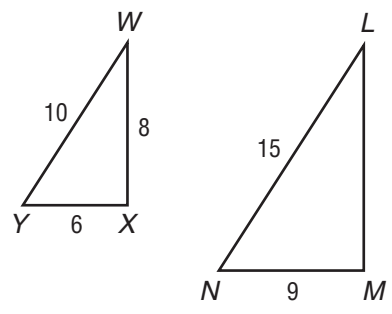**C** $48.00
D $52.75

Countdown to CRCT
6 Weeks to CRCT
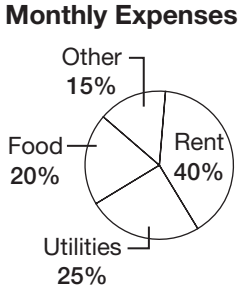
Monday

1 How much sales tax is due on a purchase of $28 if the sales tax rate is 5%?

A $1.25
B $1.40
C $1.50
D $1.65

2 A sofa that normally sells for $850 is on sale for $680. What is the percent markdown on the sofa?

A 10%
B 15%
C 20%
D 25%

Tuesday

3 Suppose that 12 people attended last month's book club meeting. This month, 15 people attended. What is the percent increase in attendance?

A 15%
B 20%
C 25%
D 40%

4 An area rug that normally sells for $60 is on sale for $48. What is the percent markdown on the rug?

A 10%
B 15%
C 20%
D 25%

Wednesday

5 Georgia has about 24 million acres of commercial forestland. Hardwoods such as oak, maple, and sweet gum make up 53% of this forestland. Estimate the number of acres of forestland that are hardwoods.

A 6,000,000 acres
B 10,000,000 acres
C 12,000,000 acres
D 18,000,000 acres

6 Marcos wants to buy a video game that normally sells for $35. If the game is on sale for 20% off, what is the sale price?

A $7
B $12
C $28
D $30

Thursday

7 How much simple interest is earned on an investment of $1,200 over 3 years at a rate of 5%? Use the formula $I = prt$.

A $210
B $180
C $90
D $60

Friday

8 What is the probability of rolling an odd number with a number cube?

A $\frac{1}{6}$

B $\frac{1}{3}$

C $\frac{1}{2}$
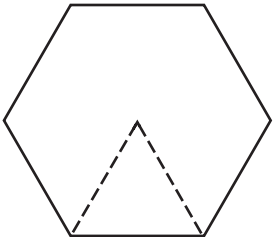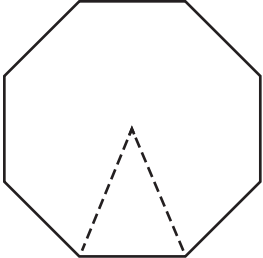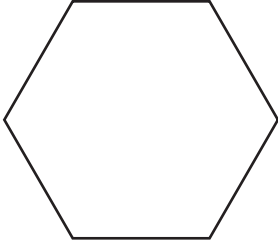
D $\frac{2}{3}$

Countdown to CRCT
5 Weeks to CRCT

Monday

1 How much simple interest is earned on an investment of $400 over 2 years at a rate of 7.5%? Use the formula $I = prt$.

A $30

B $45

C $50

D $60

2 If Ping constructs the bisector of the angle below, what will the measure of the resulting angles be?

A 17°

B 34°

C 52°

D 68°

68°

Tuesday

3 Ling is sketching the perpendicular bisector $\overline{CD}$ of $\overline{AB}$. What kind of angles are formed by the two segments?

A acute angles

B 45° angles

C obtuse angles

D right angles

C

A ————— B

D

4 Which figure CANNOT be formed by combining two triangles?

A hexagon

B parallelogram

C rectangle

D square

Wednesday

5 The triangles below are similar. What is the length of $\overline{LM}$?

A 10

B 11

C 12

D 14

W

10   8

Y   6   X

L

15

N   9   M

6 William made a circle graph of his monthly expenses. If his total monthly budget is $1,200, how much does he spend on rent each month?

A $480

B $510

C $525

D $650

Monthly Expenses

Other 15%

Food 20%

Rent 40%

Utilities 25%

Thursday

7 What will the coordinates of $P(-2, 8)$ be after a dilation by the scale factor $\frac{1}{2}$?

A $P'(-1, 8)$

B $P'(-2, 8)$

C $P'(-1, 4)$

D $P'(-4, 16)$

Friday

8 How many lines of symmetry does the figure have?

A 0

B 1

C 2

D 4

Countdown to CRCT
4 Weeks to CRCT

Monday

1 Which term describes two figures that have the same size and shape?

  A congruent

  B equilateral

  C isosceles

  D similar

2 If triangle *HIJ* is similar to triangle *DEF*, which statement is true?

  A $HI = DE$

  B $IJ = DF$

  C $m\angle J = m\angle E$

  D $m\angle H = m\angle D$

Tuesday

3 How many equilateral triangles are needed to make a regular hexagon?

  A 3

  B 4

  C 5

  D 6

4 Which statement is NOT true about similar figures?

  A Corresponding angles are congruent.

  B The figures have the same shape.

  C Corresponding sides are proportional.

  D Corresponding sides have the same length.

Wednesday

5 How many isosceles triangles are needed to make a regular octagon?

  A 4

  B 5

  C 6

  D 8

6 How many lines of symmetry does a regular hexagon have?

  A 3

  B 6

  C 9

  D 12

Thursday

7 Point *Z* has coordinates *Z*(4, −10). After a dilation, the coordinates are *Z′*(1, −2.5). What scale factor was used for the dilation?

  A 4   **B** 2

  C $\frac{1}{2}$ **D** $\frac{1}{4}$

Friday

8 What will be the coordinates of point *P*(2, 5) after a 180° rotation?

  A $P'(-2, 5)$

  B $P'(-2, -5)$

  C $P'(-5, -2)$

  D $P'(-5, 2)$
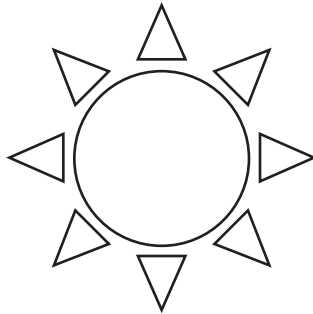
Countdown to CRCT
3 Weeks to CRCT

Monday

1 What angle of rotation was used to create the symmetric figure?
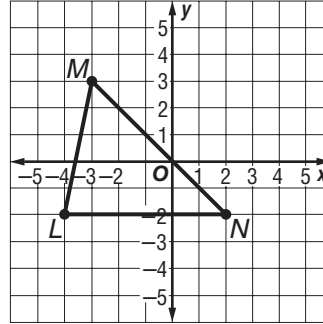
A 45°
B 60°
C 90°
D 180°

2 Suppose that rectangle *ABCD* has a length of 15 inches and a width of 10 inches. Rectangle *HIJK* is similar to *ABCD* and has a length of 9 inches. What is the width of rectangle *HIJK*?

A 6 in.
B 7.5 in.
C 12 in.
D 12.5 in.

Tuesday

3 What will the coordinates of point *L'* be if triangle *LMN* is reflected across the *y*-axis?

A $L'(-2, -2)$
B $L'(4, -2)$
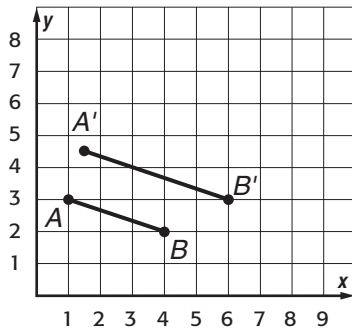**C** $L'(-2, 2)$
D $L'(4, 2)$

4 Suppose that you double the dimensions of a rectangular prism. By what factor does the surface area increase?

A 2
B 4
C 6
D 8

Wednesday

5 What scale factor was used to dilate segment *AB*?

A 1.5
B 1.75
C 2
D 2.5

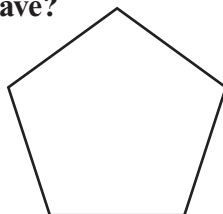**6** How many lines of symmetry does the Great Seal of Georgia have?

A 0
B 1
C 2
D 3

Thursday

7 How many lines of symmetry does a regular pentagon have?

A 0
B 3
C 5
D 10

Friday

8 Point *W* has coordinates $W(-3, 5)$. After a dilation, the coordinates are $W'(-12, 20)$. What scale factor was used for the dilation?

A 4
B 2
C $\frac{1}{2}$
D $\frac{1}{4}$
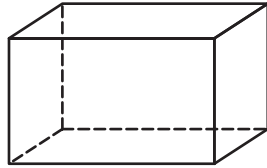
Countdown to CRCT
2 Weeks to CRCT

Monday

1 If you rotate a circle in space about its diameter, what three-dimensional figure is formed?

A cone
B cylinder
C rectangular prism
D sphere

2 What is the cross section of a horizontal plane and the rectangular prism?

A circle
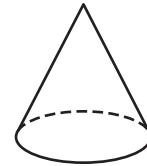**B** oval
C rectangle
D square

Tuesday

3 If you take a circle in space and translate it down 4 units, what three-dimensional figure is formed?

A cone
B cylinder
C rectangular prism
D sphere

4 What is the cross section of a horizontal plane and a cone?
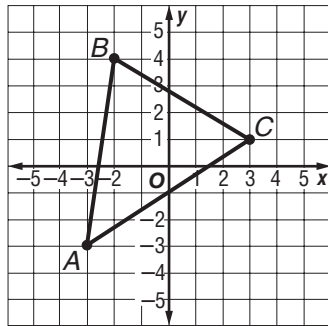
A circle
B rectangle
C square
D triangle

Wednesday

5 What will be the coordinates of point C' if you dilate the triangle by a scale factor of 3?

A $C'(3, 9)$
B $C'(3, 6)$
C $C'(9, 1)$
D $C'(9, 3)$

6 The Georgia quarter has a diameter of about 24 millimeters. Which expression represents the area of the quarter?

A 12π mm^2
B 24π mm^2
C 96π mm^2
D 144π mm^2

Thursday

7 Evaluate $|-15| - |7|$.

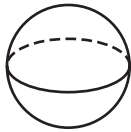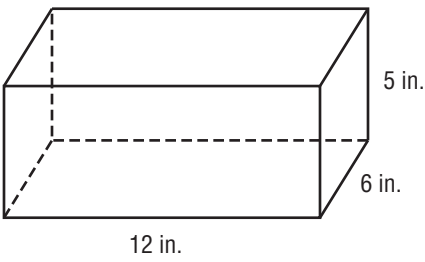**A** -22
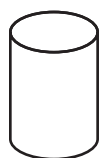**B** -8
C 6
D 8

Friday

8 How can you write the phrase "2.5 times the average" as an algebraic expression?

A $a \div 2.5$
B $a + 2.5$
C $2.5 - a$
D $2.5a$

Countdown to CRCT
1 Week to CRCT

Monday

1 What is the volume of a box that is 1.5 feet long, 2 feet wide, and 1.25 feet deep?

A 3.25 ft^3

B 3.5 ft^3

C 3.75 ft^3

D 4.25 ft^3

2 Suppose that you double the dimensions of a rectangular prism. By what factor does the volume increase?

A 2

B 4

C 6

D 8

Tuesday

3 Which of the following could NOT be the cross section of a plane and a sphere?

A circle

B oval

C point

D triangle

4 What is the volume of the box?

A 372 in^3 **B** 360 in^3

C 348 in^3 **D** 324 in^3

5 in.

6 in.

12 in.

Wednesday

5 The perimeter of one rectangle is 14 yards. The perimeter of a similar rectangle is 21 yards. What scale factor was used to create the larger rectangle?

A 1.2 **B** 1.25

C 1.4 **D** 1.5

6 Suppose that an elevator begins on the fourth floor of a hotel. The elevator travels 7 floors up, 5 floors down, 3 floors down, 6 floors up, and 2 floors down. On what floor does the elevator finally stop?

A 4th floor **B** 5th floor

C 6th floor **D** 7th floor

Thursday

7 Suppose that you multiply the dimensions of a cube by 3. By what factor will the volume increase?

A 3

B 9

C 21

D 27

Friday

8 What is the cross section of a horizontal plane and a cylinder?

A circle

B oval

C rectangle

D square

GLENCOE'S
ASSESSMENT
ADVANTAGE

Road Map to CRCT Success

1 **Diagnose** strengths and weaknesses by taking the Diagnostic Test.

2 **Prescribe** a plan for improvement by using the Recording Chart to see where additional practice is needed.

3 **Practice** test-taking skills by using the practice pages and Sample Test.

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