CCSS

Diagnostic and Placement Tests

Grade K-Algebra 2

Diagnostic and Placement Tests for Grades K through 8,
Algebra 1, Geometry, and Algebra 2
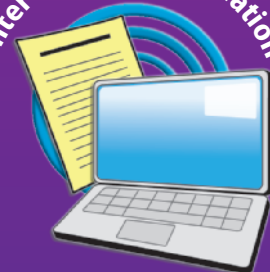
Scoring Guide

simplify placement
decisions

Diagnostic Chart

suggestions for intervention
and remediation

Intervention/Remediation

suggested materials

McGraw Hill

Placement Test 6

Scoring Guide

For each part, mark the box under the number of correctly answered questions.

|	0	1	2	3	4	5	6	7	8	9

The Number System

Ratios and Proportional Relationships

Expressions and Equations

Geometry

Statistics and Probability

Mark the total number correct below.

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Total																															

Key: Consider this student for...

☐ *Math Triumphs*

▨ Grade 6 Strategic Intervention—See page 77 for materials list.

▨ *Glencoe Math, Course 1*

Placement Test 6
Learning Objectives
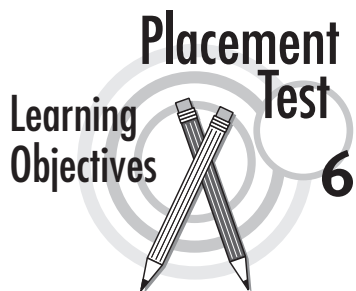
Student Name _____

In the column on the left, mark the questions that the student answered *incorrectly*.

Domain	Question Number	Objective
The Number System	☐ 1	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
	☐ 2	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
	☐ 3	Fluently divide multi-digit numbers using the standard algorithm.
	☐ 4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.
	☐ 5	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.
	☐ 6	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.
	☐ 7	Understand ordering and absolute value of rational numbers.
	☐ 8	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
Ratios and Proportional Relationships	☐ 9	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
	☐ 10	Find a percent of a quantity as a rate per 100.
	☐ 11	Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a{:}b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.
	☐ 12	Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio $a{:}b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.
	☐ 13	Solve unit rate problems including those involving unit pricing and constant speed.
Expressions and Equations	☐ 14	Write, read, and evaluate expressions in which letters stand for numbers.
	☐ 15	Write, read, and evaluate expressions in which letters stand for numbers.
	☐ 16	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.
	☐ 17	Apply the properties of operations to generate equivalent expressions.
	☐ 18	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
	☐ 19	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem.

Domain	Question Number	Objective
Geometry	☐ 20	Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
	☐ 21	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.
	☐ 22	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.
	☐ 23	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures.
	☐ 24	Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.
	☐ 25	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.
Statistics and Probability	☐ 26	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
	☐ 27	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
	☐ 28	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
	☐ 29	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
	☐ 30	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number.

Diagnostic and Placement Tests

Placement Test 6

Diagnostic Chart
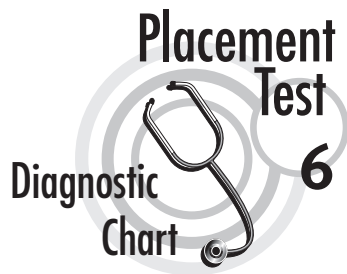
Student Performance Level	Number of Questions Correct	Suggestions for Intervention and Remediation
Intensive Intervention	**0–17**	Use *Math Triumphs* to accelerate the achievement of students who are two or more years below grade level. Students should follow a personalized remediation plan. A variety of materials and instructional methods are recommended. For example, instruction and practice should be provided in print, technology, and hands-on lessons.
Strategic Intervention	**18–23**	Use the additional Intervention and Remediation materials listed on the next page. This list of materials can provide helpful resources for students who struggle in the traditional mathematics program. Strategic intervention allows students to continue to remain in the *Glencoe Math* program, while receiving the differentiated instruction they need. Teaching Tips and other resources are also listed in the Teacher Edition.
Grade 6	**24 or more**	Use *Glencoe Math*. This student does not require overall intervention. However, based on the student's performance on the different sections, intervention may be required. For example, a student who missed 2 or more questions in the Geometry section may require extra assistance as you cover these skills throughout the year.

A Special Note About Intervention

When using diagnostic tests, teachers should always question the reason behind the students' scores. Students can struggle with mathematics concepts for a variety of reasons. Personalized instruction is recommended for English language learners, students with specific learning disabilities, students with certain medical conditions, or for those who struggle with traditional instructional practice. Teachers should always consider the needs of the individual student when determining the best approach for instruction and program placement.
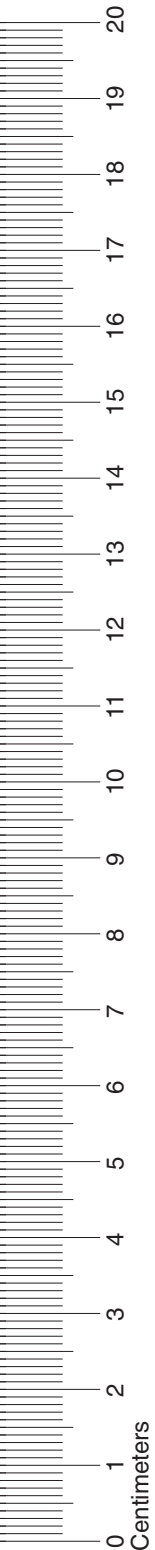
Intervention/Remediation Materials Grade 6

Get ConnectED	*Find these materials at* www.connectED.mcgraw-hill.com.

Reteach Masters	A brief explanation, along with examples and exercises, for every lesson in the Student Edition (Two pages for Problem-Solving Lessons and one page per lesson for all other lessons) and included in the Chapter Resource Masters
Skills Practice Masters	Additional practice in computational and application exercises for each lesson in the Student Edition and included in the Chapter Resource Masters
Homework Practice Masters	Additional practice in computational and spiral review exercises for each lesson in the Student Edition and included in the Chapter Resource Masters
Self-Check Quizzes	Students can check their understanding for each lesson and email their results to the teacher
Chapter Readiness Quizzes	Online assessment to use at the beginning of each chapter in the Student Edition
Personal Tutor	Online instructions for step-by-step solutions for the examples of each lesson in the student textbook
Quick Review Skills Workbook	Additional computational practice in basic skills

Additional Technology

|	
ExamView® Assessment Suite	Networkable software includes a Worksheet Builder to make worksheets and tests, a Student Module to take tests on-screen, and a Management System to keep student records

Mathematics Chart

LENGTH	CAPACITY AND VOLUME
Metric	**Metric**
1 kilometer = 1,000 meters	1 liter = 1,000 milliliters
1 meter = 100 centimeters	
1 centimeter = 10 millimeters	**Customary**
	1 gallon = 4 quarts
Customary	1 gallon = 128 ounces
1 mile = 1,760 yards	1 quart = 2 pints
1 mile = 5,280 feet	1 pint = 2 cups
1 yard = 3 feet	1 cup = 8 ounces
1 foot = 12 inches	
MASS AND WEIGHT	**TIME**
Metric	1 year = 365 days
1 kilogram = 1,000 grams	1 year = 12 months
1 gram = 1,000 milligrams	1 year = 52 weeks
	1 week = 7 days
Customary	1 day = 24 hours
1 ton = 2,000 pounds	1 hour = 60 minutes
1 pound = 16 ounces	1 minute = 60 seconds

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Centimeters

Mathematics Chart

Area		Volume
rectangle	$A = \ell w$ or $A = bh$	right rectangular prism
triangle	$A = \frac{1}{2}bh$ or $A = \frac{bh}{2}$	$V = \ell w h$ or $V = Bh$
parallelogram	$A = bh$	
trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$ or $A = \frac{(b_1 + b_2)h}{2}$	

0
Inches

1

2

3

4

5

6

Diagnostic and Placement Tests
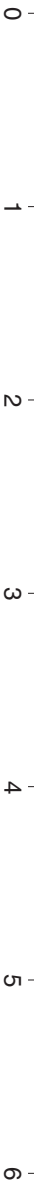
Diagnostic and Placement Grade 6

Name _____

Date _____

This test contains 30 multiple-choice questions. Work each problem in the space on this page. Select the best answer. Write the letter of the answer on the blank at the right.

1 The table below shows the length of the hiking trails at a local park. Aaron hikes half of the blue trail. What distance did he hike?

1 _____

Hiking Trails	
Trail	**Length (miles)**
Red	1.09
Blue	1.86
Green	1.10
Yellow	1.28

A 0.5 mile   **B** 0.93 mile   **C** 1.86 miles   **D** 3.72 miles

2 Candace is knitting a scarf. The scarf is 4.6 feet long. If she knits another 1.75 feet, how long will the scarf be?

2 _____

F 6.35 feet   **G** 5.81 feet   **H** 5.35 feet   **J** 2.85 feet

3 Ms. Ayala had 152 pencils. She divided the number of pencils equally among 13 students. She kept the leftover pencils in her desk. What is the greatest number of pencils Ms. Ayala could have given each student?

3 _____

A 9   **B** 10   **C** 11   **D** 12

4 Kono divides the numerator and denominator of $\frac{48}{72}$ by the greatest common factor to simplify the fraction in one step. By what number does he divide?

4 _____

F 2   **H** 16

G 12   **J** 24

5 After January 1, Aleta has band practice every fourth day and swimming lessons every third day. If both programs end January 31, how many days in January will Aleta have both band practice and swimming lessons?

A 1 day   **C** 3 days

B 2 days   **D** 4 days

5 _____

6 In simplest form, what is the quotient of $\frac{1}{6} \div \frac{2}{9}$?

F $\frac{1}{27}$ **H** $\frac{9}{12}$

G $\frac{2}{54}$ **J** $\frac{3}{4}$

6 _____

7 Which sign makes the number sentence $-8 \square -3$ true?

A $>$ **B** $<$ **C** $=$ **D** $\geq$

7 _____

8 A triangle has sides measuring 3.54 inches, 5.12 inches, and 2.30 inches. Add to find the perimeter of the triangle.

F 10.69 inches   **H** 11.06 inches

G 10.96 inches   **J** 11.96 inches

8 _____

9 For every 12 slices of pizza sold at Ping's Pizza Shop, 3 slices are pepperoni, 4 are sausage, and the rest are cheese. What is the ratio of pepperoni to cheese?

A 3:12   **C** 3:4

B 3:5   **D** 5:3

9 _____

10 Kara is training for a 5-kilometer race. On the first day of training, she runs 0.75 kilometer. What percent of the total distance does she run the first day of training?

F 5%   **H** 15%

G 10%   **J** 25%

10 _____

11 A 4-pack of batteries costs $5.16. At this price, what is the cost of one battery?

A $1.29   **C** $5.16

B $1.49   **D** $20.64

11 _____

12 The table shows the cost of ride tickets at the fair. What is the unit rate for one ride ticket?

Number of Tickets	Cost
5	$3.75
10	$7.50
15	$11.25
20	$15.00

   F $0.37   **G** $0.55   **H** $0.70   **J** $0.75

13 Kali earned $40 for babysitting for 5 hours. At this rate, how much will she earn for babysitting for 7 hours?

   A $8   **B** $45   **C** $47   **D** $56

14 Tia, Veronica, Pam, and Lily are sisters. Tia is 8 years old and she is 2 years older than Pam. Pam is 5 years younger than Veronica and Veronica is 4 years younger than Lily. Which list has the sisters in order from youngest to oldest?

   F Tia, Veronica, Pam, Lily

   G Lily, Veronica, Tia, Pam

   H Tia, Pam, Veronica, Lily

   J Pam, Tia, Veronica, Lily

15 The table below shows the cost for different numbers of tickets.

Number of Tickets	2	4	6	8	10
Cost	12	24	36	48	60

   Based on the information in the table, which of the following statements is true?

   A Each ticket costs $2.

   B Each ticket costs $6.

   C The more tickets you buy the less each ticket costs.

   D The more tickets you buy the greater each ticket costs.

16 Edmundo bought 4 trading cards yesterday. He bought some more trading cards today. Now he has 12 trading cards. If n represents the number of trading cards Edmundo bought today, which equation is correct?

   F $4 + 12 = n$ **H** $n + 12 = 4$

   G $4 + n = 12$ **J** $n + 4 = 16$

17 Which of the following expressions is equivalent to $7(x + 3)$?

    A $10 + x$ **C** $7x + 3$

    B $7x + 21$ **D** $3x + 21$

18 What is the solution to the equation $5 + b = 18$?

    F $b = 5$ **H** $b = 13$
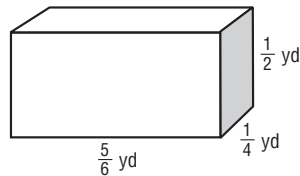
    G $b = 8$ **J** $b = 23$

19 Miguel practiced more than 5 hours for his first soccer game. Which inequality represents p, the amount of time Miguel practiced?

    A $p > 5$ **C** $p = 5$

    B $p < 5$ **D** $p \geq 5$

20 A rectangular prism is shown below. What is the volume of the prism?

    F $\frac{1}{2}$ yd^3 **H** $\frac{5}{24}$ yd^3

    G $\frac{5}{48}$ yd^3 **J** $\frac{7}{12}$ yd^3

21 Look at the figure below.

What is the area of the figure?

    A   12 cm^2 **C**   38 cm^2

    B   32 cm^2 **D**   42 cm^2

           Diagnostic and Placement Tests

22 Lanu draws a rectangle that is 10 inches wide and 20 inches long. Which rectangle described below has the same area?

    F   5 inches wide and 25 inches long

    G   8 inches wide and 25 inches long

    H   15 inches wide and 15 inches long
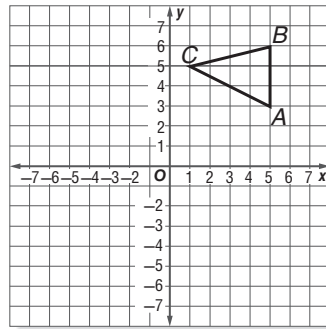
    J   15 inches wide and 25 inches long

23 A box has a square base with each side measuring 8 inches. The height of the box is 4 inches. What is the surface area of the box in cubic inches?

    A   96 square inches   **C**   256 square inches

    B   192 square inches   **D**   612 square inches

24 On the graph below, what is the length of side *AB*?

    F   3 units   **G**   4 units   **H**   5 units   **J**   6 units

25 Mrs. Brown has a flower garden in the shape of a parallelogram. The length of the base of the garden is 9.5 feet and the height is 4.2 feet. What is the area of the flower garden?

    A   19.95 ft^2 **B**   27.4 ft^2 **C**   30.7 ft^2 **D**   39.9 ft^2

26 Mrs. Esperanza's math class is playing a game using two spinners. One spinner has the colors red, blue, and green. The other spinner has the numbers 1, 2, 3, 4, 5, 6, 7, and 8. How many possible outcomes are there?

    F   11   **G**   16   **H**   21   **J**   24

27 Trent has a math quiz every Friday. The table below shows his quiz scores. What is the mode of Trent's scores?

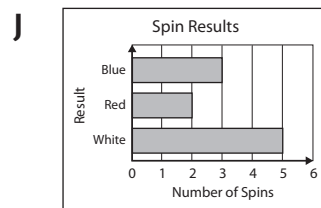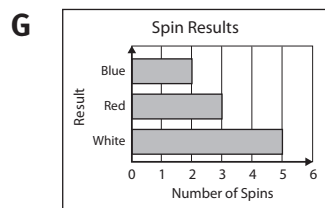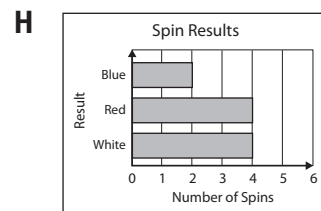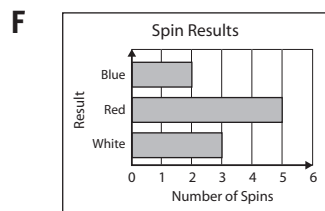| Trent's Math Quiz Scores							
Quiz	1	2	3	4	5	6	7
Score	97	88	78	77	82	57	88

A 97　　　　**B** 88　　　　**C** 82　　　　**D** 81

28 Kahlid spins a spinner 10 times. The results are shown in the tally chart below. Which of the following graphs show these results?

Spin Results	
White	|||
Red	⫻⊢
Blue	||

F

H

G

J

29 What is the median of these data?

67, 98, 78, 75, 83, 44, 98

A 44　　　　　　　　　　**C** 78
B 75　　　　　　　　　　**D** 98

30 The number of points Ming scored in each basketball game this season are shown below. What is the mean number of points she scored?

3	7	1	8	2	4	9	10	8	8

F 6　　　　**G** 8　　　　**H** 9　　　　**J** 10

Answers (Grade 6)

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---

1 The table below shows the length of the hiking trails at a local park. Aaron hikes half of the blue trail. What distance did he hike?

Hiking Trails	
Trail	**Length (miles)**
Red	1.09
Blue	1.86
Green	1.10
Yellow	1.28

  A 0.5 mile   **B** 0.93 mile   **C** 1.86 miles   **D** 3.72 miles

1 ___B___

---

2 Candace is knitting a scarf. The scarf is 4.6 feet long. If she knits another 1.75 feet, how long will the scarf be?

  F 6.35 feet   **G** 5.81 feet   **H** 5.35 feet   **J** 2.85 feet

2 ___F___

---

3 Ms. Ayala had 152 pencils. She divided the number of pencils equally among 13 students. She kept the leftover pencils in her desk. What is the greatest number of pencils Ms. Ayala could have given each student?

  A 9   **B** 10   **C** 11   **D** 12

3 ___C___

---

4 Kono divides the numerator and denominator of $\frac{48}{72}$ by the greatest common factor to simplify the fraction in one step. By what number does he divide?

  F 2   **H** 16
  G 12   **J** 24

4 ___J___

---

5 After January 1, Aleta has band practice every fourth day and swimming lessons every third day. If both programs end January 31, how many days in January will Aleta have both band practice and swimming lessons?

  A 1 day   **C** 3 days
  B 2 days   **D** 4 days

5 ___B___

---

6 In simplest form, what is the quotient of $\frac{1}{6} \div \frac{2}{9}$?

  F $\frac{1}{27}$ **H** $\frac{9}{12}$
  G $\frac{2}{54}$ **J** $\frac{3}{4}$

6 ___J___

---

7 Which sign makes the number sentence -8 ☐ -3 true?

  A $>$ **B** $<$ **C** $=$ **D** $\geq$

7 ___B___

---

8 A triangle has sides measuring 3.54 inches, 5.12 inches, and 2.30 inches. Add to find the perimeter of the triangle.

  F 10.69 inches   **H** 11.06 inches
  G 10.96 inches   **J** 11.96 inches

8 ___G___

---

9 For every 12 slices of pizza sold at Ping's Pizza Shop, 3 slices are pepperoni, 4 are sausage, and the rest are cheese. What is the ratio of pepperoni to cheese?

  A 3:12   **C** 3:4
  B 3:5   **D** 5:3

9 ___B___

---

10 Kara is training for a 5-kilometer race. On the first day of training, she runs 0.75 kilometer. What percent of the total distance does she run the first day of training?

  F 5%   **H** 15%
  G 10%   **J** 25%

10 ___H___

---

11 A 4-pack of batteries costs $5.16. At this price, what is the cost of one battery?

  A $1.29   **C** $5.16
  B $1.49   **D** $20.64

11 ___A___

Answers (Grade 6)

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12 The table shows the cost of ride tickets at the fair. What is the unit rate for one ride ticket?

Number of Tickets	Cost
5	$3.75
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15	$11.25
20	$15.00

F $0.37 **G** $0.55 **H** $0.70 **J** $0.75

12 _____ J

13 Kali earned $40 for babysitting for 5 hours. At this rate, how much will she earn for babysitting for 7 hours?

A $8 **B** $45 **C** $47 **D** $56

13 _____ D

14 Tia, Veronica, Pam, and Lily are sisters. Tia is 8 years old and she is 2 years older than Pam. Pam is 5 years younger than Veronica and Veronica is 4 years younger than Lily. Which list has the sisters in order from youngest to oldest?

F Tia, Veronica, Pam, Lily
G Lily, Veronica, Tia, Pam
H Tia, Pam, Veronica, Lily
J Pam, Tia, Veronica, Lily

14 _____ J

15 The table below shows the cost for different numbers of tickets.

Number of Tickets	2	4	6	8	10
Cost	12	24	36	48	60

Based on the information in the table, which of the following statements is true?

A Each ticket costs $2.
B Each ticket costs $6.
C The more tickets you buy the less each ticket costs.
D The more tickets you buy the greater each ticket costs.

15 _____ B

16 Edmundo bought 4 trading cards yesterday. He bought some more trading cards today. Now he has 12 trading cards. If n represents the number of trading cards Edmundo bought today, which equation is correct?

F $4 + 12 = n$
G $4 + n = 12$
H $n + 12 = 4$
J $n + 4 = 16$

16 _____ G

17 Which of the following expressions is equivalent to $7(x + 3)$?

A $10 + x$ **C** $7x + 3$
B $7x + 21$ **D** $3x + 21$

17 _____ B

18 What is the solution to the equation $5 + b = 18$?

F $b = 5$ **H** $b = 13$
G $b = 8$ **J** $b = 23$

18 _____ H

19 Miguel practiced more than 5 hours for his first soccer game. Which inequality represents p, the amount of time Miguel practiced?

A $p > 5$ **C** $p = 5$
B $p < 5$ **D** $p \geq 5$

19 _____ A

20 A rectangular prism is shown below. What is the volume of the prism?

$\frac{5}{6}$ yd $\frac{1}{2}$ yd $\frac{1}{4}$ yd

F $\frac{1}{2}$ yd^3 **H** $\frac{5}{24}$ yd^3
G $\frac{5}{48}$ yd^3 **J** $\frac{7}{12}$ yd^3

20 _____ G

21 Look at the figure below.

8 cm 4 cm 5 cm 3 cm

What is the area of the figure?

A 12 cm^2 **C** 38 cm^2
B 32 cm^2 **D** 42 cm^2

21 _____ C

Answers (Grade 6)

22   G

Lanu draws a rectangle that is 10 inches wide and 20 inches long. Which rectangle described below has the same area?

F   5 inches wide and 25 inches long
G   8 inches wide and 25 inches long
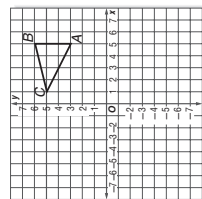H   15 inches wide and 15 inches long
J   15 inches wide and 25 inches long

23   C

A box has a square base with each side measuring 8 inches. The height of the box is 4 inches. What is the surface area of the box in cubic inches?
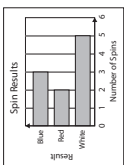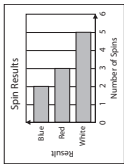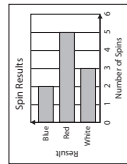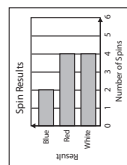
A   96 square inches
B   192 square inches
C   256 square inches
D   612 square inches

24   F

On the graph below, what is the length of side AB?

F   3 units   G   4 units   H   5 units   J   6 units

25   D

Mrs. Brown has a flower garden in the shape of a parallelogram. The length of the base of the garden is 9.5 feet and the height is 4.2 feet. What is the area of the flower garden?

A   19.95 ft²   B   27.4 ft²   C   30.7 ft²   D   39.9 ft²

26   J

Mrs. Esperanza's math class is playing a game using two spinners. One spinner has the colors red, blue, and green. The other spinner has the numbers 1, 2, 3, 4, 5, 6, 7, and 8. How many possible outcomes are there?

F   11   G   16   H   21   J   24

27   B

Trent has a math quiz every Friday. The table below shows his quiz scores. What is the mode of Trent's scores?

Trent's Math Quiz Scores

Quiz	1	2	3	4	5	6	7
Score	97	88	78	77	82	57	88

A   97   B   88   C   82   D   81

28   F

Kahlid spins a spinner 10 times. The results are shown in the tally chart below. Which of the following graphs show these results?

29   C

What is the median of these data?

67, 98, 78, 75, 83, 44, 98

A   44   B   75   C   78   D   98

30   F

The number of points Ming scored in each basketball game this season are shown below. What is the mean number of points she scored?

3	7	1	8	2	4	9	10	8	8

F   6   G   8   H   9   J   10