2007

Green River

Regional Educational Cooperative

Grade 5
Mathematics

Multiple Choice

Measured Progress

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Multiple Choice Item 1

Standard: MA-05-1.1.1: Number Sense — Students will

- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999,999);
- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe commonly-used fractions, mixed numbers and decimals through thousandths;
- apply these numbers to represent real-world problems and
- explain how the base-10 number system relates to place value.

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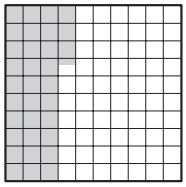
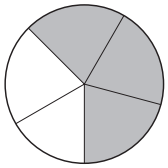
Answer Key: D

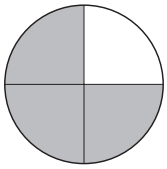
Portion of Standard Being Addressed
This item requires the student to identify equivalent pictorial representations of a decimal number.

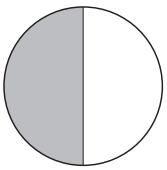
1. Use the picture below of a decimal square with a portion shaded to answer the question.

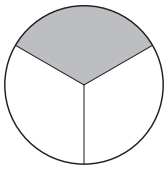


The shaded area shown above represents a fractional part of the whole decimal square. A class is representing decimal squares with circle graphs. Which of the circles below has a shaded portion that is equivalent?

A. 

C. 

B. 

D. 

Multiple Choice Item 2

Standard: MA-05-1.1.1: Number Sense — Students will

- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999,999);
- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe commonly-used fractions, mixed numbers and decimals through thousandths;
- apply these numbers to represent real-world problems and
- explain how the base-10 number system relates to place value.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to determine the value of a digit in a large number.

2. In 1976, Jimmy Carter received 40,827,394 votes in the Presidential Election. What is the value of the 2 in 40,827,394?

   A. twenty million
   B. two hundred thousand
   C. twenty thousand
   D. two thousand

Multiple Choice Item 3

Standard: MA-05-1.1.1: Number Sense — Students will

- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999,999);
- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe commonly-used fractions, mixed numbers and decimals through thousandths;
- apply these numbers to represent real-world problems and
- explain how the base-10 number system relates to place value.

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Answer Key: B

Portion of Standard Being Addressed
This item requires the student to identify the standard form of a number given its expanded form.

3. Which number is another way of writing the sum 700,000 + 8,000 + 100 + 20 + 1?

   A. 78,121
   B. 708,121
   C. 780,121
   D. 7,008,121

Multiple Choice Item 4

Standard: MA-05-1.1.1: Number Sense — Students will

- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999,999);
- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe commonly-used fractions, mixed numbers and decimals through thousandths;
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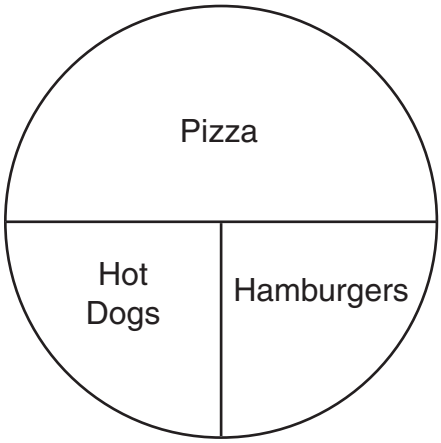
Answer Key: B

Portion of Standard Being Addressed
This item requires the student to determine relative quantities from a pie chart.

4. Mrs. Anderson asked her students what kind of food they wanted for the class party. The results are shown in this pie chart.

Class Party



Four students wanted hamburgers. How many students wanted pizza?

A. 4
B. 8
C. 12
D. 16

Multiple Choice Item 5

Standard: MA-05-1.1.1: Number Sense — Students will

- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, expanded form, symbols) to represent whole numbers (0 to 99,999,999);
- apply multiple representations (e.g., drawings, manipulatives, base-10 blocks, number lines, symbols) to describe commonly-used fractions, mixed numbers and decimals through thousandths;
- apply these numbers to represent real-world problems and
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Answer Key: C

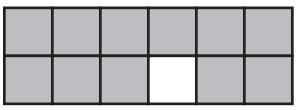
Portion of Standard Being Addressed
This item requires the student to provide examples of representations of numbers based on mathematical problems.

5. Zach painted $\frac{5}{6}$ of his tiles gray. Which picture shows $\frac{5}{6}$ of the tiles painted gray?

A.

B.

C.

D. 

Multiple Choice Item 6

Standard: MA-05-1.1.2: Number Sense — Students will read, write and rename whole numbers, fractions and decimals, and apply to real-world and mathematical problems.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to identify the standard form number given in words.

6. Which number is read "five and four tenths"?

   A. 54
   B. 45
   C. 5.4
   D. 5.04

Multiple Choice Item 7

Standard: MA-05-1.1.2: Number Sense — Students will read, write and rename whole numbers, fractions and decimals, and apply to real-world and mathematical problems.

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Answer Key: A

Portion of Standard Being Addressed
This item requires the student to identify the standard form number given in words.

7. A state park covers one million, nine thousand, three hundred thirty-six acres. What is this number in standard form?

   A. 1,009,336
   B. 1,090,336
   C. 1,309,036
   D. 1,900,336

Multiple Choice Item 8

Standard: MA-05-1.2.1: Estimation — Students will apply and describe appropriate strategies for estimating quantities of objects and computational results in real-world problems.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to apply appropriate strategies for estimating in order to solve a problem with decimals.

8. Mrs. Schmidt is making finger puppets for her kindergarten class. She needs one square of felt for every 7 puppets. The felt she uses costs $0.59 per square. If she wants to make 24 puppets, about how much money will she need to spend on felt?

   A. $4.20
   B. $3.00
   C. $2.40
   D. $1.20

Multiple Choice Item 9

Standard: MA-05-1.2.1: Estimation — Students will apply and describe appropriate strategies for estimating quantities of objects and computational results in real-world problems.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to apply estimation strategies in a problem situation.

9. Use the chart below to answer the question.

Major Rivers of the World	Length in Miles
Amazon	3915
Mississippi	2348
Nile	4145
Ohio–Allegheny	1306
Rio Grande	1885
St. Lawrence	1900
Snake	1000
Volga	2194

The Nile River is about how many times as long as the Snake River?

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

Multiple Choice Item 10

Standard: MA-05-1.2.1: Estimation — Students will apply and describe appropriate strategies for estimating quantities of objects and computational results in real-world problems.

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Answer Key: A

Portion of Standard Being Addressed
This requires the student to identify an appropriate strategy to estimate the product of a decimal number and a whole number.

10. Corey earns \$7.25 each week. He wants to buy a new game that costs \$40. Corey wants to estimate to find whether he will have enough money for the game in 6 weeks. Which is the **best** way for Corey to estimate?

    A. 7×6
    B. 7×5
    C. 8×6
    D. 8×10

Multiple Choice Item 11

Standard: MA-05-1.3.1: Number Operations — Students will analyze real-world problems to identify appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints:

- add, subtract, multiply, and divide whole numbers (less than 100,000,000), using technology where appropriate;
- add and subtract fractions with like denominators through 16, with sums less than or equal to one and
- add and subtract decimals through hundredths.

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Answer Key: C

Portion of Standard Being Addressed
This requires the student to use multiplication of whole numbers to find the solution.

11. Use the problem below to answer the question.

$$\begin{array}{r} \mathbf{126} \\ \times \quad \mathbf{33} \\ \hline \end{array}$$

In the product, what is the digit in the ones place?

A. 2
B. 3
C. 8
D. 9

Multiple Choice Item 12

Standard: MA-05-1.3.1: Number Operations — Students will analyze real-world problems to identify appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints:

- add, subtract, multiply, and divide whole numbers (less than 100,000,000), using technology where appropriate;
- add and subtract fractions with like denominators through 16, with sums less than or equal to one and
- add and subtract decimals through hundredths.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to solve a word problem using multiplication.

12. Claire is putting 81 flowers into 9 vases so that the same number of flowers is in each vase. If she gives 3 vases of flowers to her aunt, how many flowers will her aunt receive?

    A. 12 flowers
    B. 18 flowers
    C. 27 flowers
    D. 84 flowers

Multiple Choice Item 13

Standard: MA-05-1.3.1: Number Operations — Students will analyze real-world problems to identify appropriate representations using mathematical operations, and will apply operations to solve real-world problems with the following constraints:

- add, subtract, multiply, and divide whole numbers (less than 100,000,000), using technology where appropriate;
- add and subtract fractions with like denominators through 16, with sums less than or equal to one and
- add and subtract decimals through hundredths.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to apply subtraction of fractions to solve a problem.

13. When Joe got home from school, he found $\frac{6}{8}$ of a pie. He took $\frac{1}{8}$ of the pie to eat. How much pie is left?

A. $\frac{7}{8}$

B. $\frac{6}{8}$

C. $\frac{5}{8}$

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

Multiple Choice Item 14

Standard: MA-05-1.5.1: Properties of Numbers and Operations — Students will identify and determine composite numbers, prime numbers, multiples of a number, factors of a number and least common multiples (LCM), and will apply these numbers to solve real-world problems.

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Answer Key: B

Portion of Standard Being Addressed
This item requires the student to determine factors of a number to solve a problem.

14. To play "Bop," you have to deal out all 52 cards so that everyone gets the same number of cards with none left over. Which number of players can play "Bop"?

    A. 3
    B. 4
    C. 5
    D. 6

Multiple Choice Item 15

Standard: MA-05-1.5.1: Properties of Numbers and Operations — Students will identify and determine composite numbers, prime numbers, multiples of a number, factors of a number and least common multiples (LCM), and will apply these numbers to solve real-world problems.

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Answer Key: B

Portion of Standard Being Addressed
This item requires the student to identify factors of a number and prime numbers.

15. Jessie has a favorite number.

- It is a prime number.
- It is a factor of 27.

What is her favorite number?

A. 2
B. 3
C. 5
D. 9

Multiple Choice Item 16

Standard: MA-05-2.1.1: Measuring Physical Attributes — Students will apply standard units to measure length (to the nearest eighth-inch or the nearest centimeter) and to determine:

- weight (ounce, pound; gram, kilogram);
- perimeter;
- area (figures that can be divided into rectangular shapes);
- time (nearest minute);
- temperature (Fahrenheit and Celsius) and
- angle measures (nearest degree).

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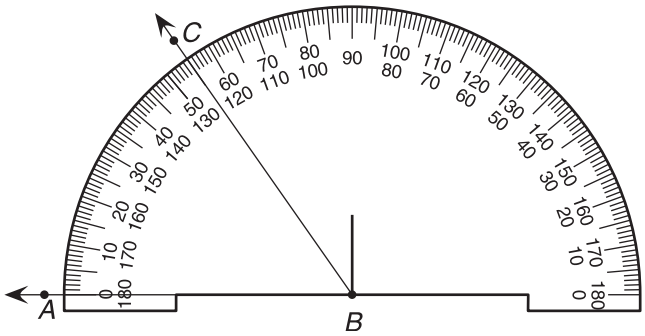
Answer Key: A

Portion of Standard Being Addressed
This item requires the student to measure an angle using a protractor.

16. Use the figure below to answer the question.



What is the measure of angle *ABC*?

A. 55°

B. 60°

C. 65°

D. 125°

Multiple Choice Item 17

Standard: MA-05-2.2.1: Systems of Measurement — Students will determine elapsed time.

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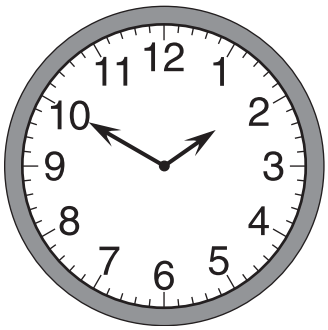
Answer Key: B

Portion of Standard Being Addressed
This item requires the student to determine the end time given start time and elapsed time.

17. This clock shows the time that a movie started.



It lasted 1 hour and 45 minutes. At what time did the movie end?

A. 3:25
B. 3:35
C. 4:05
D. 4:15

Multiple Choice Item 18

Standard: MA-05-2.2.3: Systems of Measurement — Students will convert units within the same measurement system [U.S. customary (inches, feet, yards, miles; ounces, pounds, tons), metric (millimeters, centimeters, meters, kilometers; grams, kilograms), money, or time] and use the units to solve problems.

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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to compare lengths given in different metric units.

18. The table below shows the heights of four students.

Student Heights

Student	Height
Eva	145 cm
Ray	160 cm
Mark	2 m
Amy	170 cm

Who is the tallest?

A. Eva
B. Ray
C. Mark
D. Amy

Multiple Choice Item 19

Standard: MA-05-3.1.1: Shapes and Relationships — Students will describe and provide examples of basic geometric elements and terms [points, segments, lines (perpendicular, parallel, intersecting), rays, angles (acute, right, obtuse), sides, edges, faces, bases, vertices, radius, diameter] and will apply these elements to solve real-world and mathematical problems.

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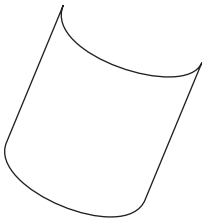
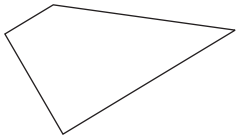
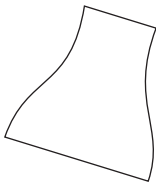
Answer Key: B

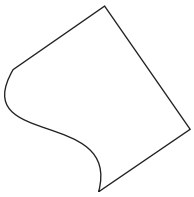
Portion of Standard Being Addressed
This item requires the student to identify an object composed of line segments.

19. Which figure below is made up of **only** line segments?

A. 

B. 

C. 

D. 

Multiple Choice Item 20

Standard: MA-05-3.3.1: Coordinate Geometry — Students will identify and graph ordered pairs on a positive coordinate system scaled by ones, twos, threes, fives or tens; locate points on a grid; and apply graphing in the coordinate system to solve real-world problems.

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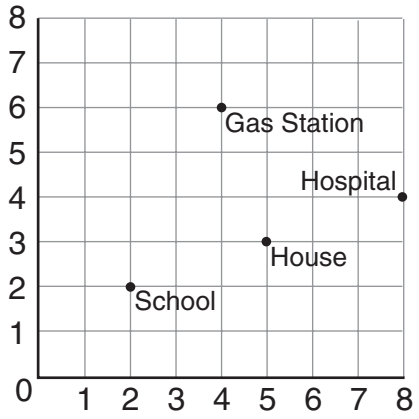
Answer Key: A

Portion of Standard Being Addressed
This item requires students to describe the relative positions of points on a coordinate plane.

20. The map shows where some buildings are located.



Which statement is true?

A. On the map, the hospital is three units to the right and one unit up from the house.
B. On the map, the school is three units to the right and one unit up from the house.
C. On the map, the house is three units to the right and one unit down from the gas station.
D. On the map, the gas station is one unit to the right and four units up from the school.

Multiple Choice Item 21

Standard: MA-05-3.2.1: Transformations of Shapes — Students will describe and provide examples of line symmetry in real-world and mathematical problems or will apply line symmetry to construct a geometric design.

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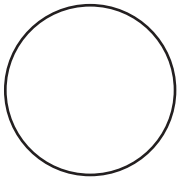
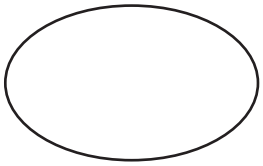
Answer Key: D

Portion of Standard Being Addressed
This item requires the student to identify an object with only one line of symmetry.

21. Which figure has **only** one line of symmetry?

A. 

B.

C. 

D.

Multiple Choice Item 22

Standard: MA-05-3.2.2: Transformations of Shapes — Students will identify 90° rotations, reflections or translations of basic shapes within a plane.

Bloom's Taxonomy
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Depth of Knowledge
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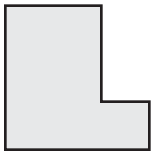
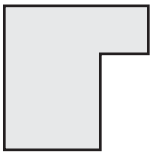
Answer Key: C

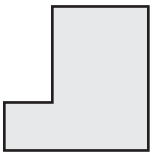
Portion of Standard Being Addressed
This item requires students to identify a 90° turn.

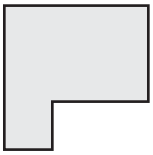
22. Joey is studying flips, turns, and slides using the tile shown below.

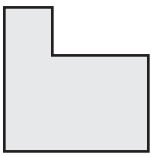


Joey turned the tile. How could the tile look now?

A. 

B. 

C. 

D. 

Multiple Choice Item 23

Standard: MA-05-3.3.1: Coordinate Geometry — Students will identify and graph ordered pairs on a positive coordinate system scaled by ones, twos, threes, fives or tens; locate points on a grid; and apply graphing in the coordinate system to solve real-world problems.

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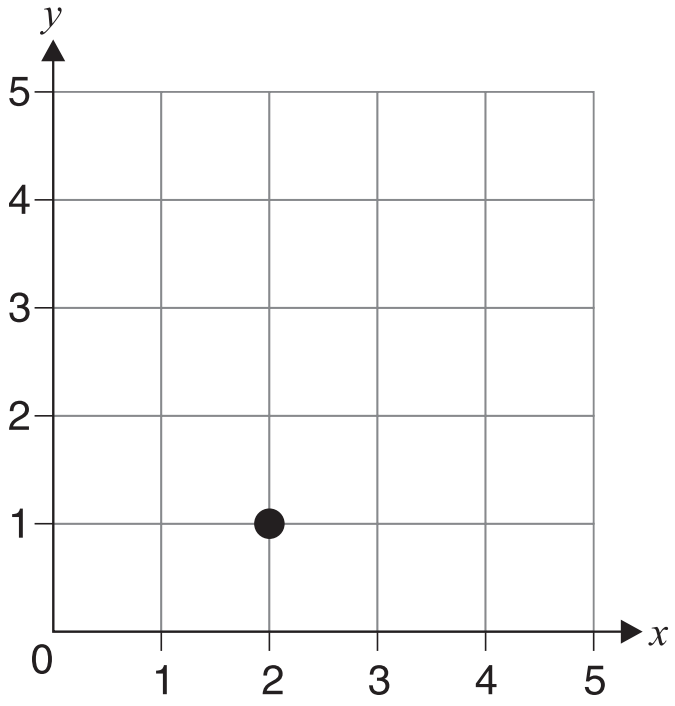
Answer Key: A

Portion of Standard Being Addressed
This item requires the student to identify the ordered pair for a point in the first quadrant of a coordinate grid.

23. Use the graph below to answer the question.



What are the coordinates for the circle?

A. (2,1)
B. (2,2)
C. (1,2)
D. (1,1)

Multiple Choice Item 24

Standard: MA-05-4.1.1: Data Representations — Students will analyze and make inferences from data displays (drawings, tables/charts, tally tables, pictographs, bar graphs, circle graphs, line plots, Venn diagrams, line graphs).

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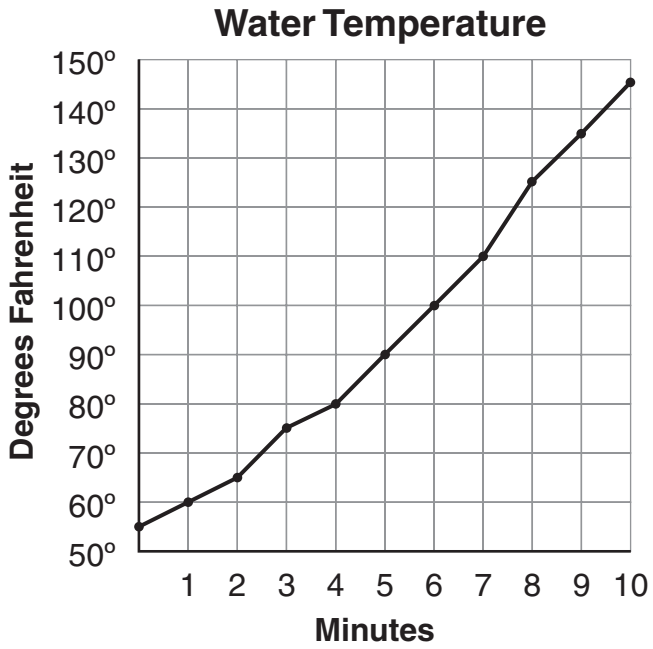
Answer Key: B

Portion of Standard Being Addressed
This item requires the student to read a line graph.

24. Ms. Marks heated a jar of water during science class. The temperature of the water was measured every minute. The data are shown in the graph below.



How many minutes did it take for the water to reach 90 degrees?

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

Multiple Choice Item 25

Standard: MA-05-4.1.3: Data Representations — Students will construct data displays (pictographs, bar graphs, line plots, line graphs, Venn diagrams, tables).

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Answer Key: C

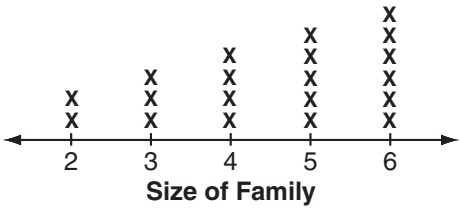
Portion of Standard Being Addressed
This item requires the student to identify the line plot that displays data given in a tally chart.

25. This tally chart shows the size of different families.

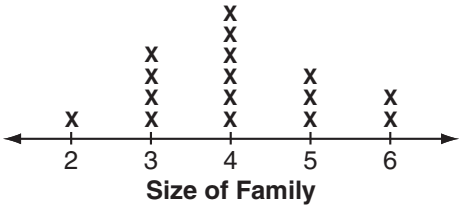
Size of Family	Students
2	|
3	||||
4	~~||||~~ |
5	|||
6	||

Which line plot correctly matches this tally chart?

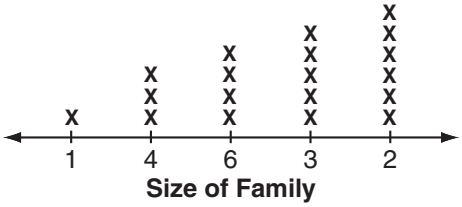
A.



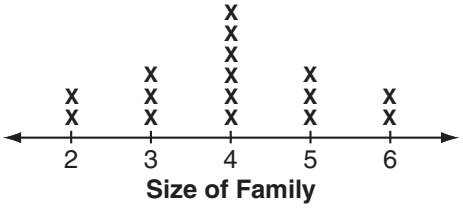
C.



B.



D.



Multiple Choice Item 26

Standard: MA-05-4.2.1: Characteristics of Data Sets — Students will determine and apply the mean, median, mode and range of a set of data.

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Depth of Knowledge
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Answer Key: C

Portion of Standard Being Addressed
This item requires the student to determine the range for a set of data.

26. This table shows the scores of 10 students on a final examination.

STUDENT	SCORE
A	88
B	65
C	91
D	36
E	72
F	57
G	50
H	85
I	62
J	48

What is the **range** of these scores?

A. 33
B. 40
C. 55
D. 88

Multiple Choice Item 27

Standard: MA-05-4.2.1: Characteristics of Data Sets — Students will determine and apply the mean, median, mode and range of a set of data.

Bloom's Taxonomy
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Depth of Knowledge
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Answer Key: D

Portion of Standard Being Addressed
This item requires the student to determine the median for a set of data.

27. Mara participated in a fitness competition at her school. Her points for each of the eight weeks of the competition are shown in this chart.

Week	1	2	3	4	5	6	7	8
Points	36	53	54	48	41.5	55.5	36	56

What was Mara's **median** number of points per week?

A. 36
B. 44.75
C. 47.5
D. 50.5

Multiple Choice Item 28

Standard: MA-05-4.4.1: Probability — Students will determine all possible outcomes of an activity/event with up to 12 possible outcomes.

Bloom's Taxonomy
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Depth of Knowledge
Level 1
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Answer Key: D

Portion of Standard Being Addressed
This requires the student to calculate the number of possible outcomes of two independent events.

28. Jerome has 2 jackets and 5 hats that he can wear as shown below.

How many different combinations of one jacket and one hat can he wear?

A. 3
B. 5
C. 7
D. 10

Multiple Choice Item 29

Standard: MA-05-4.4.2: Probability — Students will determine the likelihood of an event and the probability of an event (expressed as a fraction).

Bloom's Taxonomy
Knowledge
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Application
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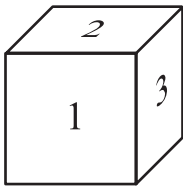
Synthesis
Evaluation

Depth of Knowledge
Level 1
Level 2
Level 3
Level 4

Answer Key: A

Portion of Standard Being Addressed
This item requires the student to recognize an impossible event as having a probability of zero.

29. George has a number cube that has the whole numbers 1 through 6 on its faces.



What is the probability he will roll a 7?

A. 0

B. $\frac{1}{7}$

C. $\frac{1}{6}$

D. 7

Multiple Choice Item 30

Standard: MA-05-4.4.2: Probability — Students will determine the likelihood of an event and the probability of an event (expressed as a fraction).

Bloom's Taxonomy
Knowledge
Comprehension
Application
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Evaluation

Depth of Knowledge
Level 1
Level 2
Level 3
Level 4

Answer Key: C

Portion of Standard Being Addressed
This requires the student to determine the probability of an event.

30. Lilly has 3 cartons of milk and 1 carton of juice in her refrigerator. If Lilly takes out one carton without looking, what is the probability that it is a carton of milk?

A. $\frac{1}{4}$

B. $\frac{1}{3}$

C. $\frac{3}{4}$

D. $\frac{4}{3}$

Multiple Choice Item 31

Standard: MA-05-5.1.1: Patterns, Relations and Functions — Students will extend patterns, find the missing term(s) in a pattern or describe rules for patterns (numbers, pictures, tables, words) from real-world and mathematical problems.

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Depth of Knowledge
Level 1
Level 2
Level 3
Level 4

Answer Key: D

Portion of Standard Being Addressed
This requires the student to extend a pattern for a mathematical problem.

31. Use the information below to answer the question.

				1					Row 1
			1	3	1				Row 2
		1	3	5	3	1			Row 3
	1	3	5	7	5	3	1		Row 4
1	3	5	7	9	7	5	3	1	Row 5

In Row 4, the middle number is 7. If the pattern continues, what will be the middle number in Row 10?

A. 13
B. 15
C. 17
D. 19

Multiple Choice Item 32

Standard: MA-05-5.1.1: Patterns, Relations and Functions — Students will extend patterns, find the missing term(s) in a pattern or describe rules for patterns (numbers, pictures, tables, words) from real-world and mathematical problems.

Bloom's Taxonomy
Knowledge
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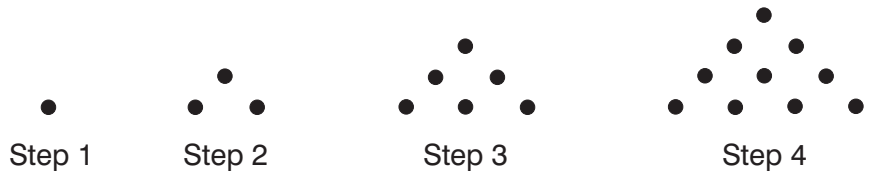
Depth of Knowledge
Level 1
Level 2
Level 3
Level 4

Answer Key: D

Portion of Standard Being Addressed
This item requires the student to extend a pattern for a mathematical problem.

32. The dots below represent the first four triangular numbers.



How many dots will be in the **sixth** triangular number?

A. 10
B. 15
C. 18
D. 21

Multiple Choice Item 33

Standard: MA-05-5.1.1: Patterns, Relations and Functions — Students will extend patterns, find the missing term(s) in a pattern or describe rules for patterns (numbers, pictures, tables, words) from real-world and mathematical problems.

Bloom's Taxonomy
Knowledge
Comprehension
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Depth of Knowledge
Level 1
Level 2
Level 3
Level 4

Answer Key: C

Portion of Standard Being Addressed
This item requires the student to extend a pattern for a real-world problem.

33. The chart below shows the number of friends Pat invited to some of her birthday parties.

Birthday	9	10	11	12	13	14	15
People	6	9	12	15			?

Based on the pattern in the chart, how many friends will Pat invite to her 15th birthday party?

A. 9
B. 15
C. 24
D. 30

Multiple Choice Item 34

Standard: MA-05-5.1.2: Patterns, Relations and Functions — Students will describe functions (input-output) through pictures, tables, or words and will construct tables to analyze functions based on real-world or mathematical problems.

Bloom's Taxonomy
Knowledge
Comprehension
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Evaluation

Depth of Knowledge
Level 1
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Level 4

Answer Key: C

Portion of Standard Being Addressed
This item requires the student to describe functions with words.

34. In the table below, a rule is used to change the IN number to the OUT number.

IN	2	3	4	5
OUT	8	12	16	20

What is the rule for this table?

A. Add 6.
B. Subtract 6.
C. Multiply by 4.
D. Divide by 4.

Multiple Choice Item 35

Standard: MA-05-5.2.1: Variables, Expressions and Operations — Students will model verbal descriptions of real-world and mathematical problems using a variable or a missing value in an expression.

Bloom's Taxonomy
Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

Depth of Knowledge
Level 1
Level 2
Level 3
Level 4

Answer Key: A

Portion of Standard Being Addressed
This item requires the student to model verbal descriptions of real-world problems using a variable in an expression.

35. George is making hamburgers. He can make 3 hamburgers from each pound of meat. Which expression shows how many hamburgers George can make from n pounds of meat?

    A. $3 \cdot n$
    B. $n \div 3$
    C. $3 + n$
    D. $n - 3$