

Missouri MAP Grade 5 Math Practice

Exam Materials
Pages 2 - 24

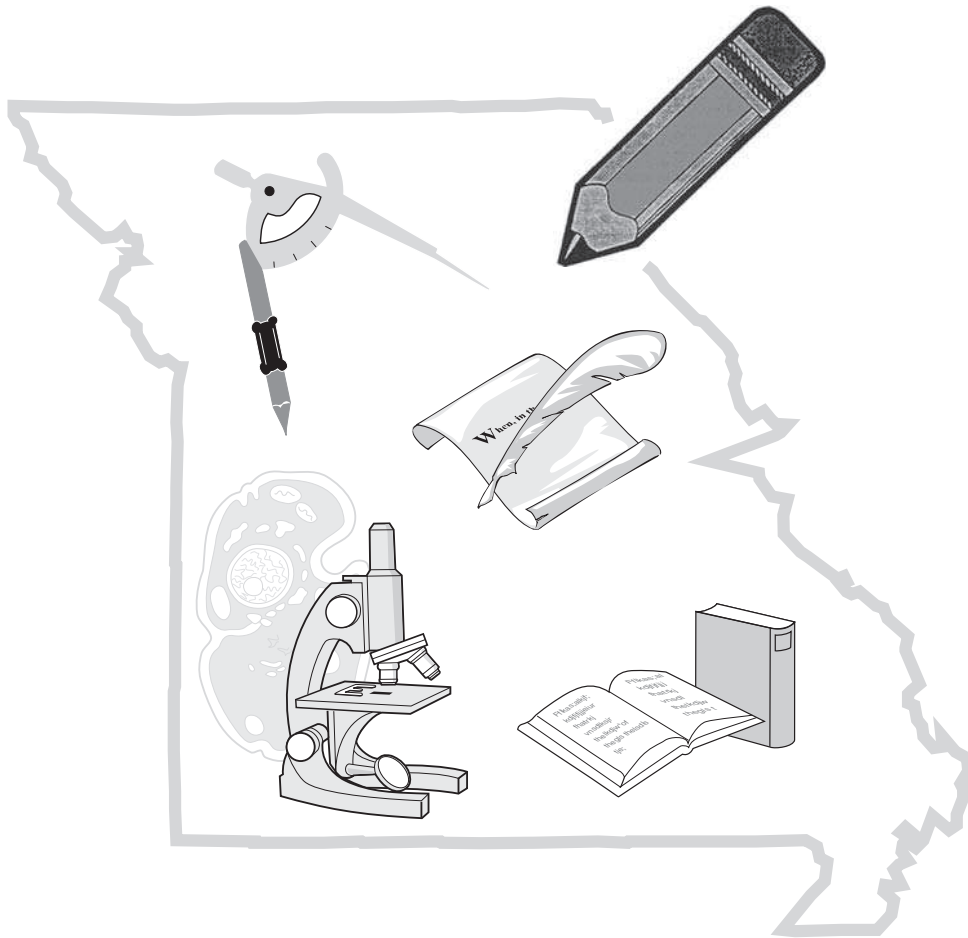
Answer Key Materials
Pages 25 - 27

Name: _____

District/School: _____

Missouri Assessment Program

Released Practice Form Grade 5 Mathematics

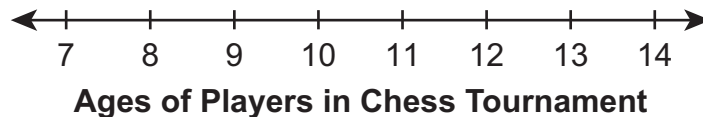


1. A perfume company sells bottles of perfume. Each bottle contains $\frac{3}{8}$ ounce of perfume. Select the **three** values that correctly represent the total amount of perfume, in ounces, in 6 of these bottles.
- A. $1\frac{1}{8}$
- B. $2\frac{1}{4}$
- C. $6\frac{3}{8}$
- D. $\frac{9}{4}$
- E. $\frac{18}{8}$
- F. 16
2. Mallory has x stickers. Anishka has 4 times as many stickers as Mallory. Write an expression that shows how many stickers Anishka has.

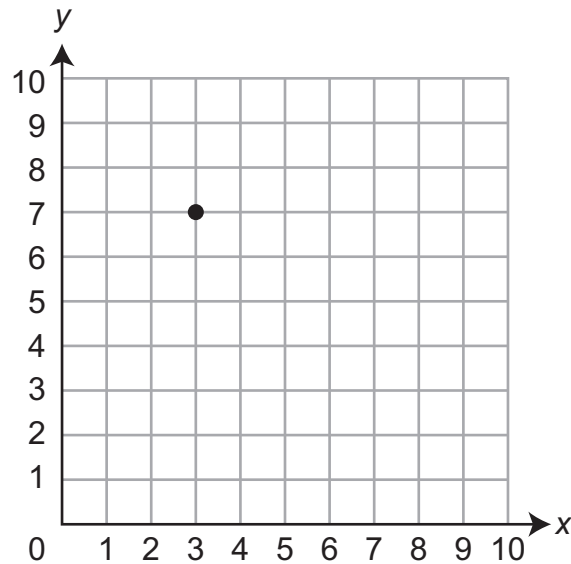
3. Which statement is true of all polygons?
- A. All polygons have right angles.
- B. All polygons have parallel lines.
- C. All polygons have four or more sides.
- D. All polygons are made up of line segments.

4. A construction company is moving large rocks. It takes $\frac{3}{4}$ hour to move 12 rocks. The construction company has already moved 60 of the 144 rocks that need to be moved. How long, in hours, will it take the construction company to move the remaining rocks?
- A. $3\frac{3}{4}$
- B. $5\frac{1}{4}$
- C. 7
- D. 9
5. A chess tournament has 7 players of various ages.
- The maximum age of the players is 12.
 - The range of the ages of the players is 4.
 - The mode of the ages of the players is shared by 2 different ages.
 - The minimum, maximum, mode, and median are all different ages.

Create a line plot to show the ages of the 7 players in the chess tournament.



6. A point is shown on the coordinate plane.



What is the value of the y-coordinate of the point?

- A. 3
 - B. 4
 - C. 7
 - D. 10
7. Amanda writes the population of her town in expanded form, as shown.

$$(6 \times 10^5) + (3 \times 10^3) + (8 \times 10^2)$$

What is the population of Amanda's town written as a base ten numeral?

- A. 638
- B. 60,380
- C. 63,800
- D. 603,800

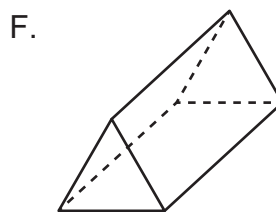
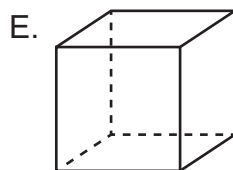
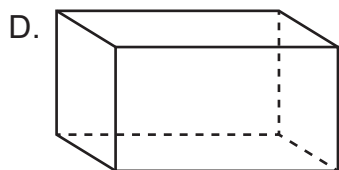
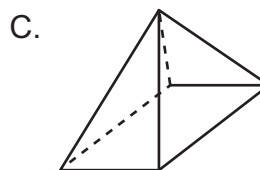
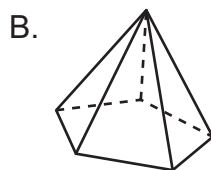
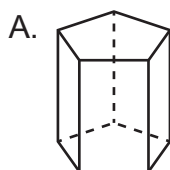
8. Francisco and Sara went on a car trip. Francisco drove the car for $2\frac{2}{3}$ hours. Then, Sara drove the car for $1\frac{3}{4}$ hours. To find the total number of hours they drove, Francisco does the steps shown below.

Expression:	$2\frac{2}{3} + 1\frac{3}{4}$
Step 1:	$2\frac{8}{12} + 1\frac{11}{12}$
Step 2:	$3\frac{19}{12}$
Step 3:	$3 + 1\frac{7}{12}$
Step 4:	$4\frac{7}{12}$

Which statement best explains Francisco's **first** error?

- A. In Step 1, $2\frac{8}{12}$ should be $2\frac{11}{12}$.
- B. In Step 1, $1\frac{11}{12}$ should be $1\frac{9}{12}$.
- C. In Step 3, $1\frac{7}{12}$ should be $1\frac{9}{12}$.
- D. In Step 3, $1\frac{7}{12}$ should be $2\frac{7}{12}$.

9. Select the **three** figures that are either rectangular prisms or rectangular pyramids.



10. Ava has $\frac{1}{8}$ of a blueberry pie. She divides this amount into two equally sized pieces to share with her brother. What fraction of the whole pie does Ava give to her brother?

- A. $\frac{1}{16}$
B. $\frac{1}{8}$
C. $\frac{2}{8}$
D. $\frac{1}{2}$

11. The first five terms of a number pattern are listed from left to right.

128, 64, 32, 16, 8

Which statement correctly describes the starting number and the rule for the pattern?

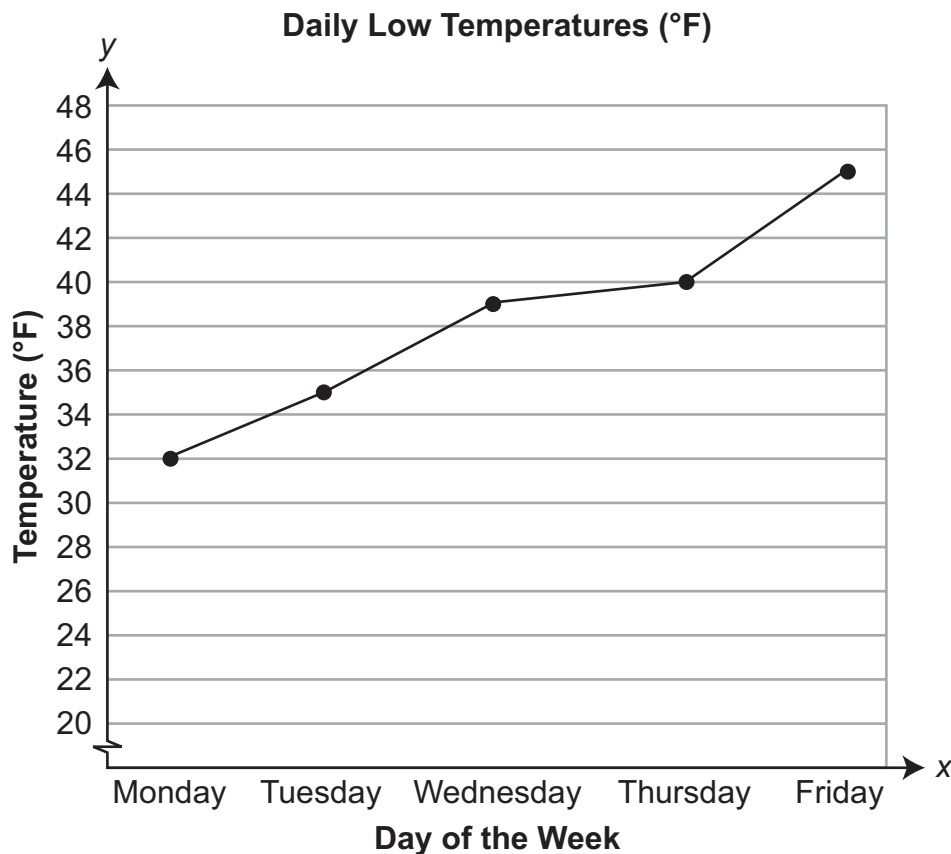
- A. The starting number is 8, and the rule is add 8.
B. The starting number is 8, and the rule is multiply by 2.
C. The starting number is 128, and the rule is divide by 2.
D. The starting number is 128, and the rule is subtract 64.
12. Kelly plays video games. She says, "I scored three million two hundred four thousand eighteen points in my last game." Write a digit from 0 to 9 in each box to create a base ten numeral that represents Kelly's score in her last game.

, ,

13. What fraction is equivalent to 0.06?

14. Jackie has 12.25 pounds of walnuts. She wants to divide the weight of the walnuts equally among 4 friends. How many pounds of walnuts should each friend receive?
- A. 3.061
 - B. 3.0625
 - C. 3.61
 - D. 3.625
15. The length of a turtle shell is between 13 and 14 centimeters. Which measurement, in **millimeters**, could be the length of the turtle shell?
- A. 23.5
 - B. 113.5
 - C. 135
 - D. 13,500

16. Ms. Wu's class makes a graph of the week's daily low temperatures in degrees Fahrenheit ($^{\circ}\text{F}$).



Based on the graph, select the **two** statements that are true.

- A. The range of the data is 14°F .
- B. The smallest change in temperature occurred between Wednesday and Thursday.
- C. The coldest temperature recorded for the week was 20°F .
- D. If the weather pattern continues, Saturday's low temperature will be greater than 45°F .
- E. The coldest day of the week was Friday.

17. Pattern A starts at 1 and uses the rule “add 3.” Pattern B starts at 5 and uses the rule “multiply by 2.” Which shows the first five terms in each pattern?

- A. Pattern A: 1, 3, 9, 27, 81
Pattern B: 5, 7, 9, 11, 13
- B. Pattern A: 1, 3, 9, 27, 81
Pattern B: 5, 10, 20, 40, 80
- C. Pattern A: 1, 4, 7, 10, 13
Pattern B: 5, 7, 9, 11, 13
- D. Pattern A: 1, 4, 7, 10, 13
Pattern B: 5, 10, 20, 40, 80

18. Which number is the **best** estimate of $20 \times \frac{4}{9}$?

- A. 10
- B. 20
- C. 30
- D. 40

19. A group of 12 students needs enough water so that each student can have 3 cups. The water comes in 1-gallon jugs. How many jugs of water are needed for the group of students?

20. Select the **two** numbers that round to 5.4.

- A. 5.361
- B. 5.471
- C. 5.345
- D. 5.309
- E. 5.445

21. Which statement correctly compares $\frac{4}{5}$ and $\frac{16}{25}$?

- A. $\frac{4}{5} < \frac{16}{25}$ because $5 < 25$
- B. $\frac{4}{5} < \frac{16}{25}$ because $4 < 16$
- C. $\frac{4}{5} > \frac{16}{25}$ because $\frac{4}{5} = \frac{20}{25}$, and $20 > 16$
- D. $\frac{4}{5} = \frac{16}{25}$ because $\frac{4}{5} \times \frac{4}{5} = \frac{16}{25}$

1. Cal buys $\frac{3}{4}$ pound of granola. On a hike, he eats $\frac{3}{4}$ of the granola he bought. To estimate the amount of granola he eats on his hike, Cal writes $\frac{3}{4} \times \frac{3}{4}$. What is the **best** estimate for the amount of granola Cal eats on his hike?

- A. $\frac{1}{2}$ pound
- B. $\frac{6}{8}$ pound
- C. $1\frac{1}{2}$ pounds
- D. $2\frac{1}{4}$ pounds

2. Select the **three** names that describe a three-dimensional shape.

- A. cone
- B. cylinder
- C. hexagon
- D. sphere
- E. square
- F. triangle

3. Leo is comparing the number patterns described below.

- Pattern A: Starting at 0, add 3 to each term.
- Pattern B: Starting at 0, add 5 to each term.

What is the first number after 0 that Pattern A and Pattern B will share?

- A. 3
- B. 5
- C. 8
- D. 15

4. Kara runs two laps around a track. It takes her 51.495 seconds to complete her first lap and between 53 and 54 seconds to complete her second lap. Her total time for both laps is a whole number of seconds. How long, in seconds, does Kara take to complete her second lap?

5. Lloyd is comparing a square pyramid and a square prism. He is comparing the number of edges, faces, and vertices of each figure. For each of these three properties, mark whether the square pyramid has more, the square prism has more, or both figures have the same number.

	Square Pyramid Has More	Square Prism Has More	Both Figures Have the Same Number
Edges			
Faces			
Vertices			

6. Owen and Patrick each make a number pattern. The tables show the first four terms in each of their number patterns.

Term Number	1	2	3	4	...
Owen's Pattern	2	10	18	26	...

Term Number	1	2	3	4	...
Patrick's Pattern	6	13	20	27	...

Owen and Patrick write ordered pairs to represent their patterns. The first number in each ordered pair is the term number. The second number in each ordered pair is the corresponding number in the pattern. Use and extend the tables to select the **three** ordered pairs that fit Owen's or Patrick's pattern.

- A. (5, 35)
- B. (4, 27)
- C. (7, 50)
- D. (6, 43)
- E. (5, 34)
- F. (2, 6)

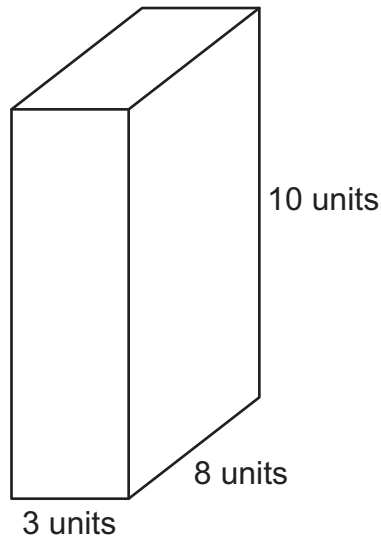
7. Leah is multiplying 15 and $\frac{3}{4}$. Which statement about Leah's product is correct?

- A. The product will be less than 15 because $\frac{3}{4}$ is less than 1.
- B. The product will be less than 15 because 3×4 is less than 15.
- C. The product will be greater than 15 because she is multiplying.
- D. The product will be greater than 15 because she is adding 15 groups of $\frac{3}{4}$.

8. Which inequality is correct?

- A. $1.026 > 1.04$
- B. $3.562 > 4.139$
- C. $5.10 > 5.1$
- D. $7.03 > 7.026$

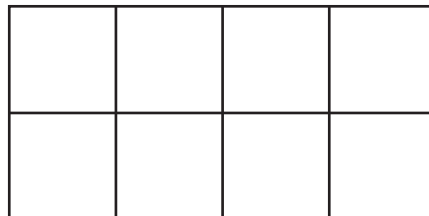
9. Two rectangular prisms have the same volume. One of the rectangular prisms is shown.



The height of the second rectangular prism is 6 units. What is the area, in square units, of the base of the second rectangular prism?

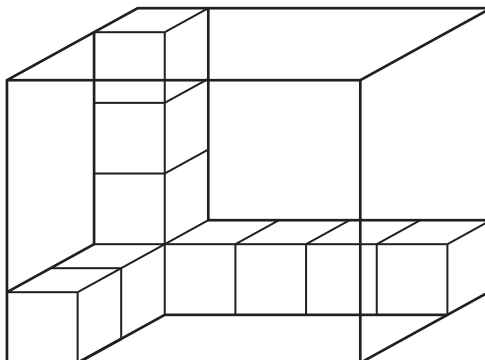


10. Sam eats $\frac{1}{4}$ of a pan of brownies. Half of the brownies he eats have nuts, and half of the brownies he eats do not have nuts. The rectangle shown represents the entire pan of brownies. Shade parts of the rectangle so the shaded portion represents the fraction of the entire pan of brownies Sam eats that has nuts.



11. Tony makes 4 cups of cookie dough. He uses $\frac{1}{8}$ cup of dough to make each cookie. To represent the number of cookies he can make, he writes the expression $4 \div \frac{1}{8}$. Which expression also represents the number of cookies Tony can make?
- A. $\frac{1}{4} \times \frac{1}{8}$
- B. $\frac{4}{1} \times \frac{1}{8}$
- C. $\frac{1}{4} \times \frac{8}{1}$
- D. $\frac{4}{1} \times \frac{8}{1}$
12. There are 1,535 people attending a local basketball tournament. Which statement correctly compares the 5 in the hundreds place to the 5 in the ones place?
- A. The 5 in the hundreds place is worth 10 times as much as the 5 in the ones place.
- B. The 5 in the hundreds place is worth 50 times as much as the 5 in the ones place.
- C. The 5 in the hundreds place is worth 100 times as much as the 5 in the ones place.
- D. The 5 in the hundreds place is worth 500 times as much as the 5 in the ones place.

13. Noah is putting wooden cubes into a box. He has already put some wooden cubes into the box as shown.



How many wooden cubes will be in the box when the box is full?

- A. 18
 - B. 24
 - C. 36
 - D. 60
14. What is $\frac{3}{4} \times \frac{7}{8}$?



15. What is the product of 24.2×8.1 ?

- A. 21.78
- B. 196.02
- C. 217.8
- D. 1,960.2

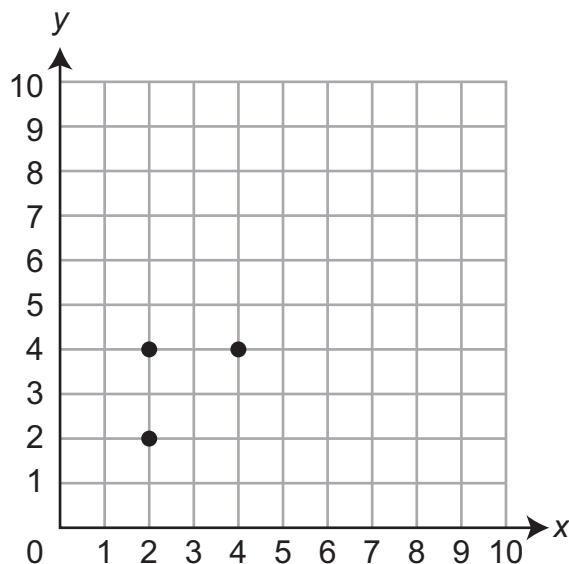
16. What is the value of $2 \times 7 - 6 \div 2$?

- A. 1
- B. 4
- C. 8
- D. 11

17. Kyrie has a bag filled with 100 jelly beans. In the bag, 15 of the jelly beans are red. Select the **two** expressions that represent the portion of the jelly beans that are red.

A. $100 - 15$
B. $100 + 15$
C. $100 \div 15$
D. $15 \div 100$
E. 0.15

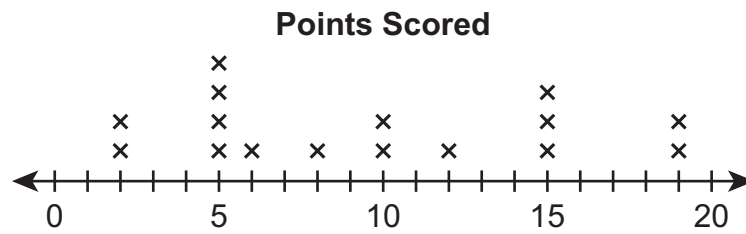
18. Wyatt is plotting the vertices of a square as points on a coordinate plane. He has plotted three of the four points already, as shown below.



What is the location of the point representing the fourth vertex of the square?

A. (2, 4)
B. (4, 2)
C. (5, 2)
D. (5, 3)

19. A line plot shows the numbers of points scored by all the players on both teams during a basketball game.



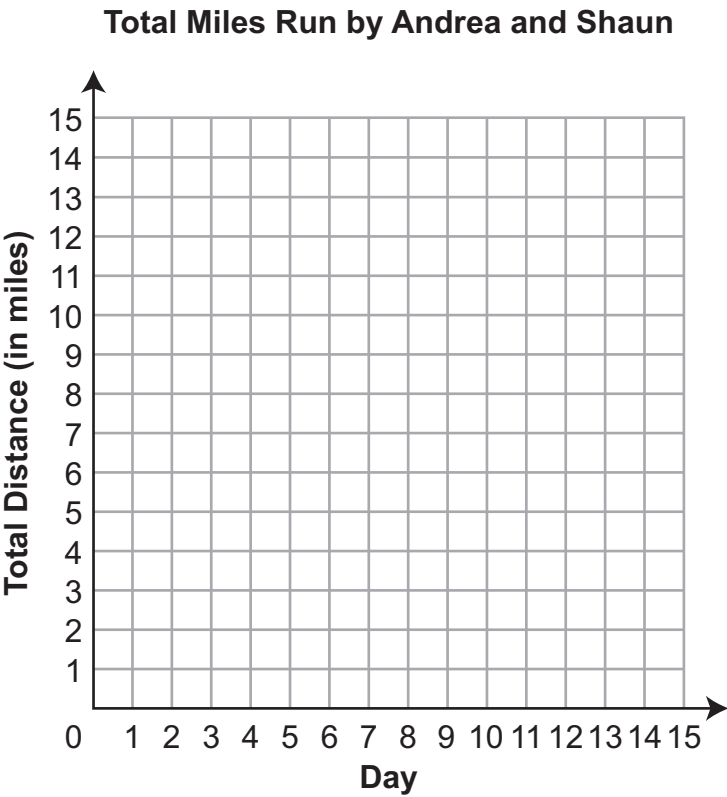
What is the median number of points scored?

20. Andrea and Shaun each run every day. On day 1, Andrea runs 2 miles and Shaun runs 1 mile. Each day after that, they both run 3 miles. The tables show the total miles for the first 4 days.

Day	1	2	3	4
Andrea's total distance (in miles)	2	5	8	11

Day	1	2	3	4
Shaun's total distance (in miles)	1	4	7	10

Plot Andrea's 4 points and plot Shaun's 4 points on the coordinate grid to represent the **total** number of miles each has run at the end of each of the 4 days.



21. The model shown represents a multiplication equation.



Which multiplication equation does the model represent?

A. $\frac{2}{7} \times \frac{5}{3} = \frac{10}{21}$

B. $\frac{2}{7} \times \frac{5}{3} = \frac{19}{21}$

C. $\frac{5}{7} \times \frac{2}{3} = \frac{10}{21}$

D. $\frac{5}{7} \times \frac{2}{3} = \frac{19}{21}$

1. A city designs a new park that will be a rectangle with a length of $\frac{3}{4}$ mile and a width of $\frac{1}{3}$ mile. The designers split the park equally into 3 rectangular sections for different activities. What is the area, in square miles, of each section? Show or explain your work.

2. Laura uses a recipe to make salsa. The ingredients are shown.

- $\frac{3}{4}$ cup tomato sauce
- $\frac{1}{2}$ cup chopped tomatoes
- $\frac{7}{8}$ cup corn
- $\frac{6}{8}$ cup black beans
- $\frac{1}{4}$ cup chopped onion
- $\frac{1}{8}$ cup chopped green pepper

What is the total number of cups of ingredients in the salsa recipe? Show or explain your work.

Math – Grade 5

Scoring Guide and Rubric

Session 1

All items worth 1 point

Item	Type	MLS	Answer
1	Multi-Select Response	5.NF.B.7.b	B, D, E
2	Short Answer	5.RA.B.4	4x or equivalent expression
3	Multiple Choice	5.GM.A.1	D
4	Multiple Choice	5.RA.C.5	B
5	Technology Enhanced (Online) Constructed Response (Paper)	5.DS.A.2	X above 8, 10 and 12, XX above 9 and 11 (All correct to receive credit)
6	Multiple Choice	5.GM.C.6.d	C
7	Multiple Choice	5.NBT.A.4	D
8	Multiple Choice	5.NF.B.6	B
9	Multi-Select Response	5.GM.A.3	C, D, E
10	Multiple Choice	5.NF.B.8.a	A
11	Multiple Choice	5.RA.A.2	C
12	Technology Enhanced (Online) Short Answer (Paper)	5.NBT.A.1	3,204,018
13	Short Answer	5.NF.A.2	6/100 or equivalent fraction
14	Multiple Choice	5.NBT.A.8	B
15	Multiple Choice	5.GM.D.8	C
16	Multi-Select Response	5.DS.A.1	B and D
17	Multiple Choice	5.RA.A.1.a	D
18	Multiple Choice	5.NF.B.5.a	A
19	Short Answer	5.GM.D.9	3
20	Multi-Select Response	5.NBT.A.5	A and E
21	Multiple Choice	5.NF.A.3	C

Math – Grade 5

Scoring Guide and Rubric

Session 2

All items worth 1 point

Item	Type	MLS	Answer
1	Multiple Choice	5.NF.B.4	A
2	Multi-Select Response	5.GM.A.2	A, B, D
3	Multiple Choice	5.RA.A.1.d	D
4	Short Answer	5.NBT.A.6	53,505
5	Technology Enhanced (Online) Constructed Response (Paper)	5.GM.A.3	Square Prism Has More for Edges, Faces and Vertices
6	Multi-Select Response	5.RA.A.1.b	B, C, E
7	Multiple Choice	5.NF.B.5.c	A
8	Multiple Choice	5.NBT.A.2	D
9	Short Answer	5GM.B.5	40
10	Technology Enhanced (Online) Constructed Response (Paper)	5.NF.B.8.a	One square shaded
11	Multiple Choice	5.NF.B.8.b	D
12	Multiple Choice	5.NBT.A.3	C
13	Multiple Choice	5.GM.B.4.b	D
14	Short Answer	5.NF.B.7.c	21/32
15	Multiple Choice	5.NBT.A.7	B
16	Multiple Choice	5.RA.B.3	D
17	Multi-Select Response	5.NF.A.1	D and E
18	Multiple Choice	5.GM.C.7	B
19	Short Answer	5.DS.A.2	9
20	Technology Enhanced (Online) Constructed Response (Paper)	5.RA.A.1.c	Plot points at: (1,1), (1,2), (2, 4), (2, 5), (3,7), (3,8), (4,10), (4,11) (All correct to receive credit)
21	Multiple Choice	5.NF.B.7.a	C

Math – Grade 5

Scoring Guide and Rubric

Session 3

Item	Type	MLS	Answer
1	Performance Event	5.NF.B	<p>Exemplary Response</p> <p>I found the area of the entire park by multiplying $\frac{3}{4}$ by $\frac{1}{3}$, which is $\frac{3}{12}$ or $\frac{1}{4}$ mile. Then I divided $\frac{1}{4}$ by 3 to find the area of each section, which is $\frac{1}{12}$ square mile.</p>
			<p>Scoring</p> <p>3 points available</p> <p><u>2 points</u>: The student shows or explains their work.</p> <p><u>1 point</u>: The student calculates the area of each section ($\frac{1}{12}$ square mile).</p>
2	Performance Event	5.NF.B	<p>Exemplary Response</p> <p>The total number of cups of ingredients in the salsa recipe is the sum of all the fractions. In order to add all the fractions, I need to have a common denominator of 8, so $\frac{3}{4} = \frac{6}{8}$, $\frac{1}{2} = \frac{4}{8}$ and $\frac{1}{4} = \frac{2}{8}$. The sum of all the fractions is $\frac{26}{8}$, or 3 and $\frac{2}{8}$ or 3 and $\frac{1}{4}$ cups.</p>
			<p>Scoring</p> <p>3 points available</p> <p><u>2 points</u>: The student shows or explains their work.</p> <p><u>1 point</u>: The student calculates that there are 3 and $\frac{1}{4}$ cups of ingredients in the salsa recipe.</p>