

Student Name _____

P

**Grade 7
Mathematics
Test Booklet**

Practice Test

TEST BOOKLET SECURITY BARCODE



Unit 1

Directions:

Today, you will take Unit 1 of the Grade 7 Mathematics Practice Test. Unit 1 has two sections. In the first section, you may not use a calculator. In the second section, you may use a calculator. **You will not be allowed to return to the first section of the test after you start the calculator section.** You must complete both the non-calculator and calculator sections of Unit 1 within the time allowed.

Read each question. Then, follow the directions to answer each question. Mark your answers by completely filling in the circles in your answer document. Do not make any pencil marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely. If a question asks you to show or explain your work, you must do so to receive full credit. Only responses written within the provided space will be scored.

If you do not know the answer to a question, you may go on to the next question. When you finish the first section, you may review your answers and any questions you did not answer in this section **ONLY**. Once you have reviewed your answers, continue to the calculator section. When you are ready to go on to the calculator section, raise your hand to receive your calculator.

Directions for Completing the Answer Grids

1. Work the problem and find an answer.
2. Write your answer in the boxes at the top of the grid.
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7. See below for examples on how to correctly complete an answer grid.

EXAMPLES

To answer -3 in a question, fill in the answer grid as shown below.

-	3				
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
<input checked="" type="radio"/>	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

To answer $.75$ in a question, fill in the answer grid as shown below.

.	7	5			
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	<input checked="" type="radio"/>	5	5	5
6	6	6	6	6	6
7	<input checked="" type="radio"/>	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

GO ON TO NEXT PAGE

Unit 1 - Section 1 (Non-Calculator)

This unit has two sections: a non-calculator section and a calculator section.

You will now take the non-calculator section of this unit in which you may not use a calculator. You will not be allowed to return to the first section of the test after you start the calculator section. You must complete both sections within the time allowed for this unit.

Once you finish the non-calculator section, read the directions in your test booklet on how to continue.

1. Which expressions are equivalent to $3\frac{1}{4} - \left(-\frac{5}{8}\right)$?

Select **all** that apply.

A. $3\frac{1}{4} - \left(\frac{5}{8}\right)$

B. $3\frac{1}{4} + \left(\frac{5}{8}\right)$

C. $3\frac{1}{4} + \left(-\frac{5}{8}\right)$

D. $3\frac{1}{4} + \left(+\frac{5}{8}\right)$

E. $-3\frac{1}{4} + \left(-\frac{5}{8}\right)$

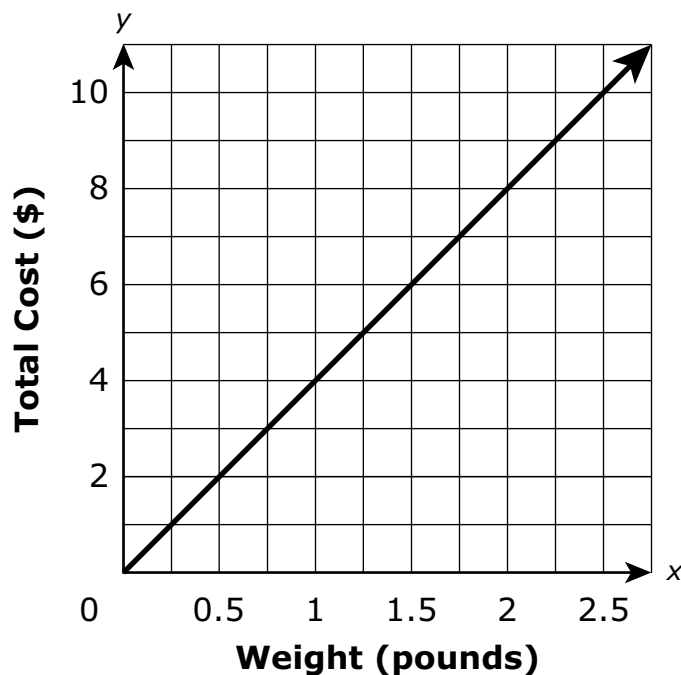
F. $-3\frac{1}{4} + \left(+\frac{5}{8}\right)$

2. At the start of the month, the value of an investment was \$48.45. By the end of the month, the value of the investment changed by a loss of \$13.80.

What was the value, in dollars, of the investment at the end of the month?

Enter your answer in the box.

3. This graph shows the relationship between the pounds of cheese bought at a deli and the total cost, in dollars, for the cheese.



Select **each** statement about the graph that is true.

Select **all** that apply.

- A. The point $(0, 0)$ shows the cost is \$0.00 for 0 pounds of cheese.
- B. The point $(0.25, 1)$ shows the cost is \$0.25 for 1 pound of cheese.
- C. The point $(0.5, 2)$ shows that 0.5 pound of cheese costs \$2.00.
- D. The point $(1, 4)$ shows the cost is \$4.00 for 1 pound of cheese.
- E. The point $(2, 8)$ shows that 8 pounds of cheese cost \$2.00.

4. Which expression is equivalent to $\frac{1}{4}(8 - 6x + 12)$?
- A. $\frac{7}{2}x$
 - B. $-\frac{13}{2}x$
 - C. $-6x + 14$
 - D. $-\frac{3}{2}x + 5$
5. In which situation could the quotient of $-24 \div 3$ be used to answer the question?
- A. The temperature of a substance decreased by 24°C per minute for 3 minutes. What was the overall change of the temperature of the substance?
 - B. A football team lost 24 yards on one play, then gained 3 yards on the next play. How many total yards did the team gain on the two plays?
 - C. Julia withdrew a total of \$24 from her bank account over 3 days. She withdrew the same amount each day. By how much did the amount in her bank account change each day?
 - D. A cookie jar contains 24 cookies. Each child receives 3 cookies. How many children are there?

6. A garden is 15 feet long by 5 feet wide. The length and width of the garden will each be increased by the same number of feet. This expression represents the perimeter of the larger garden:

$$(x + 15) + (x + 5) + (x + 15) + (x + 5)$$

Which expression is equivalent to the expression for the perimeter of the larger garden?

Select **all** that apply.

- A. $4x + 40$
- B. $2(2x + 20)$
- C. $2(x + 15)(x + 5)$
- D. $4(x + 15)(x + 5)$
- E. $2(x + 15) + 2(x + 5)$
7. Which equation has a constant of proportionality equal to 4?
- A. $4y = 4x$
- B. $4y = 12x$
- C. $3y = 4x$
- D. $3y = 12x$

- 8.** In which of these situations would the answer to the question be 0?
- A.** Teddy jumped into a pool from a diving board 8 feet above the water. He sank 8 feet and then swam straight up to the surface of the water. How many feet did Teddy swim?
 - B.** Jerry left his house and walked 1.5 miles directly west. Then he walked 1.5 miles directly east. At this point, how many miles was Jerry from his house?
 - C.** A trail begins at an elevation of -50 feet. The trail ends at an elevation of 50 feet. By how many feet does the elevation of the trail change from beginning to end?
 - D.** The low temperature one day was -3° Celsius. The high temperature that day was 3° Celsius. What is the difference between the low temperature and the high temperature that day?
- 9.** Jessica rented 1 video game and 3 movies for a total of \$11.50.
- The video game cost \$4.75 to rent.
 - The movies cost the same amount each to rent.

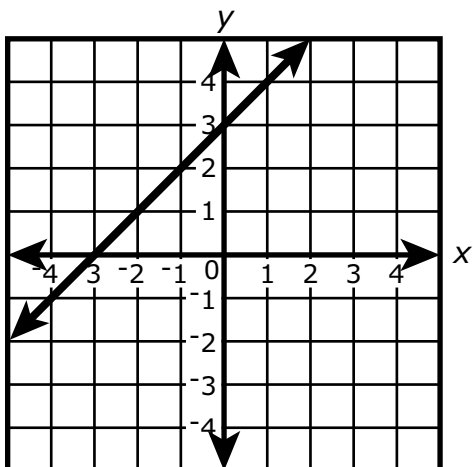
What amount, in dollars, did Jessica pay to rent each movie?

Enter your answer in the box.

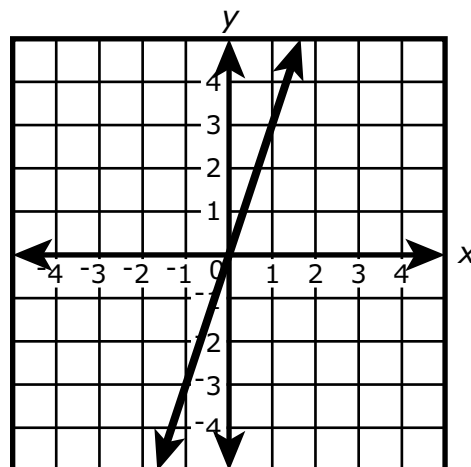
10. Which relationships have the same constant of proportionality between y and x as in the equation $y = \frac{1}{3}x$?

Select **each** correct answer.

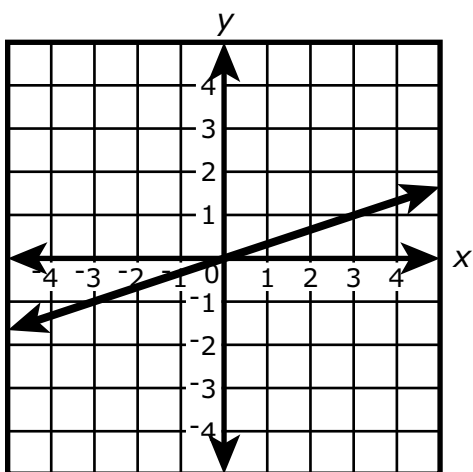
A.



B.



C.



D.

x	-1.5	0	1.6	9.7
y	-4.5	0	4.8	29.1

E.

x	-5.4	-2.7	1.5	2.4
y	-1.8	-0.9	0.5	0.8

11. Which expressions have products that are positive?

Select **all** that apply.

A. $(-5)(0.2)(-9)$

B. $\left(\frac{2}{3}\right)\left(\frac{3}{2}\right)\left(-\frac{1}{2}\right)$

C. $(6)(-3)(8)(-7)$

D. $\left(-4\frac{1}{3}\right)\left(-\frac{1}{4}\right)\left(-5\frac{1}{2}\right)\left(-\frac{7}{9}\right)$

E. $\left(\frac{5}{6}\right)(-10)\left(3\frac{4}{5}\right)(2)$

F. $(-1.2)(-3.5)(2.7)(-0.8)$

12. Two equations are shown.

- Equation 1: $-0.5x - 4 = 1.5$
- Equation 2: $-0.5(x - 4) = 1.5$

Select **each** statement that **must** be true.

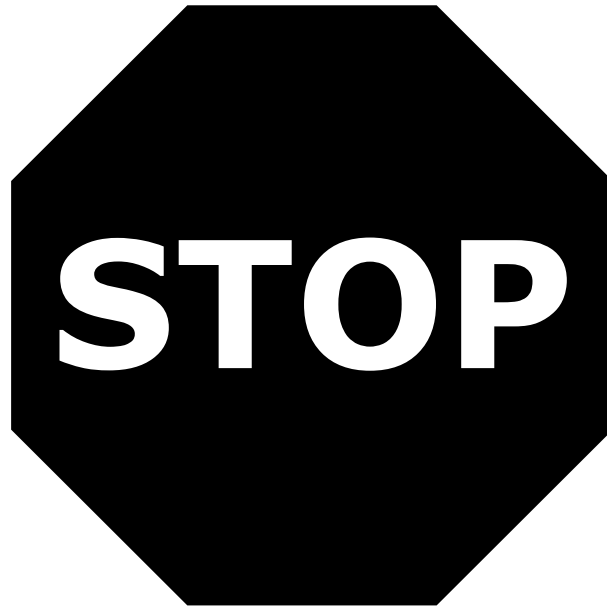
- A. x represents a negative value in both equations.
- B. x represents a positive value in both equations.
- C. x represents a positive value in one equation and a negative value in the other equation.
- D. The value x represents in Equation 1 is less than the value x represents in Equation 2.
- E. The value x represents in Equation 1 is greater than the value x represents in Equation 2.

- 13.** Hayden mixed 6 cups of blue paint with 8 cups of yellow paint to make green paint. To represent the relationship between the number of cups of blue paint, b , and the number of cups of yellow paint, y , needed to make the same shade of green paint, Hayden wrote the equation $b = \square y$.

What number should be placed in the box?

Enter your answer in the box.





You have come to the end of the non-calculator section in Unit 1 of the test.

- **You may review your answers in the non-calculator section ONLY. You will not be allowed to return to the non-calculator section once you have received your calculator.**
- **When you are ready to go on to the calculator section, raise your hand to receive your calculator.**





Unit 1 - Section 2 (Calculator)

Once you have received your calculator, continue into the calculator section.



Use the information provided to answer Part A and Part B for question 14.

A store owner paid \$15 for a book. She marked up the price of the book by 40% to determine its selling price.

14. Part A

What is the selling price, in dollars, of the book?

Enter your answer in the box.

Part B

A customer buys a different book that has an original selling price of \$38. The book is discounted 25%. The customer must pay a 6% sales tax on the discounted price of the book.

What is the total amount, in dollars, the customer pays for the discounted book?

Enter your answer in the box.

15. Sal exercised by stretching and jogging 5 days last week.

- He stretched for a total of 25 minutes during the **week**.
- He jogged for an equal number of minutes each of the 5 days.
- He exercised for a total of 240 minutes.

Elena also exercised by stretching and jogging 5 days last week.

- She stretched for 15 minutes each **day**.
- She jogged for an equal number of minutes each of the 5 days.
- She exercised for a total of 300 minutes.

Determine the number of minutes Sal jogged each day last week and the number of minutes Elena jogged each day last week. Show your work or explain all the steps you used to determine your answers.

Enter your answers and your work or explanation in the space provided.





You have come to the end of the calculator section in Unit 1 of the test.

- **Review your answers in the calculator section of Unit 1 only.**
- **Then, close your test booklet and answer document and raise your hand to turn in your test materials.**





Unit 2 (Calculator)

Directions:

Today, you will take Unit 2 of the Grade 7 Mathematics Practice Test. You will be able to use a calculator.

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EXAMPLES

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-	3				
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6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

To answer $.75$ in a question, fill in the answer grid as shown below.

.	7	5			
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	<input checked="" type="radio"/>	5	5	5
6	6	6	6	6	6
7	<input checked="" type="radio"/>	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9



- 16.** Misha has a cube and a right-square pyramid that are made of clay. She placed both clay figures on a flat surface.

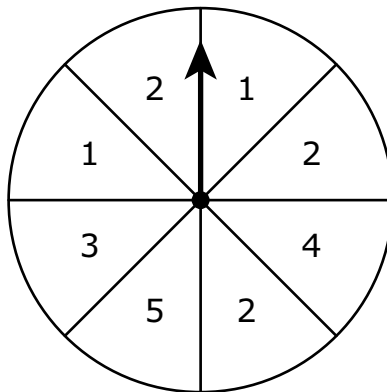
Misha will make slices through each figure that are parallel and perpendicular to the flat surface. Which statements are true about the two-dimensional plane sections that **could** result from one of these slices?

Select **all** that apply.

- A.** A plane section that is triangular could result from one of these slices through the cube.
- B.** A plane section that is square could result from one of these slices through the cube.
- C.** A plane section that is rectangular but not square could result from one of these slices through the cube.
- D.** A plane section that is triangular could result from one of these slices through the pyramid.
- E.** A plane section that is square could result from one of these slices through the pyramid.
- F.** A plane section that is rectangular but not square could result from one of these slices through the pyramid.



17. The spinner shown is divided into 8 equal sections.



The arrow on this spinner is spun once.

What is the probability that the arrow will land on a section labeled with a number **greater** than 3?

- A. $\frac{1}{8}$
- B. $\frac{1}{4}$
- C. $\frac{1}{3}$
- D. $\frac{1}{2}$



- 18.** Reagan will use a random number generator 1,200 times. Each result will be a digit from 1 to 6. Which statement **best** predicts how many times the digit 5 will appear among the 1,200 results?
- A.** It will appear exactly 200 times.
 - B.** It will appear close to 200 times but probably not exactly 200 times.
 - C.** It will appear exactly 240 times.
 - D.** It will appear close to 240 times but probably not exactly 240 times.



19. Chris made at least one error as she found the value of this expression.

$$2(-20) + 3\left[\frac{5}{4}(-20)\right] + 5\left[\frac{2}{5}(50)\right] + 4(50)$$

Step 1: $2(-20) + 3(-25) + 5(20) + 4(50)$

Step 2: $(3 + 2)(-20 + -25) + (5 + 4)(20 + 50)$

Step 3: $5(-45) + 9(70)$

Step 4: $-225 + 630$

Step 5: 405

Identify the step in which Chris made her first error. After identifying the step with the first error, write the corrected steps and find the final answer.

Enter the identified step, your work, and the final answer in the space provided.

20. A train traveled $\frac{1}{5}$ of the distance between two cities in $\frac{3}{4}$ hour.

At this rate, how many hours will it take the train to travel the entire distance between these two cities?

- A. $\frac{3}{20}$
- B. $\frac{4}{15}$
- C. $3\frac{3}{4}$
- D. $6\frac{2}{3}$



21. A scientist planted seeds in 4 sections of soil for an experiment. Not all of the seeds grew into plants. After 20 days, the scientist counted the number of plants in each of the 4 sections. The results are shown in the table.

Plant Experiment

Section	Size of Section (square feet)	Number of Plants
1	25	13
2	100	38
3	125	47
4	150	62

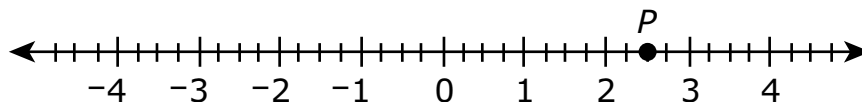
- Use the data in the table to determine approximately how many plants grew per square foot.
- Explain or show how you determined your approximation.
- Let y be the number of plants expected to grow in x square feet. Write an equation the scientist could use to model the relationship between y and x .

Enter your approximation, explanation, and equation in the space provided.



Use the information provided to answer Part A and Part B for question 22.

Point P is plotted on the number line.



22. Part A

Point Q is the opposite of point P . Determine the location of point Q on the number line. Explain how you determined the location of point Q on the number line.

Enter your answer and your explanation in the space provided.

Part B

Point S is located at $\frac{5}{4}$ on the number line. A student claims that the location of point S is to the right of the location of point P on the number line.

- Explain whether the student's claim is correct or incorrect.
- Write an inequality that describes the relationship between the value of point P and the value of point S .

Enter your explanation and your inequality in the space provided.



Use the information provided to answer Part A and Part B for question 23.

The scale on a map shows that 5 centimeters = 2 kilometers.

23. Part A

What number of centimeters on the map represents an actual distance of 5 kilometers?

Enter your answer in the box.

Part B

What is the actual number of kilometers that is represented by 2 centimeters on the map?

Enter your answer in the box.





You have come to the end of Unit 2 of the test.

- **Review your answers from Unit 2 only.**
- **Then, close your test booklet and answer document and raise your hand to turn in your test materials.**





Unit 3 (Calculator)

Directions:

Today, you will take Unit 3 of the Grade 7 Mathematics Practice Test. You will be able to use a calculator.

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<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	0	0
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2	2	2	2	2	2
<input checked="" type="radio"/>	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

To answer $.75$ in a question, fill in the answer grid as shown below.

.	7	5			
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	<input checked="" type="radio"/>	5	5	5
6	6	6	6	6	6
7	<input checked="" type="radio"/>	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9



GO ON TO NEXT PAGE



24. Rosy waxes $\frac{2}{3}$ of her car with $\frac{1}{4}$ bottle of car wax.

At this rate, what fraction of the bottle of car wax will Rosy use to wax her entire car?

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

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

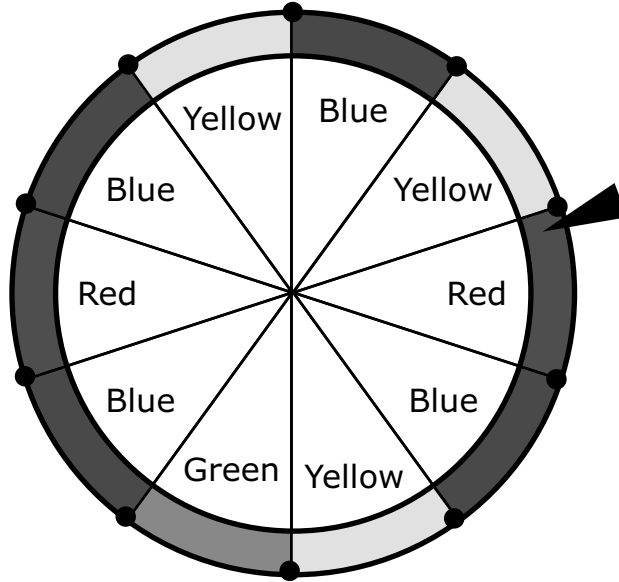
C. $\frac{3}{8}$

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



25. Part A

A game at a carnival has 4 colors on a wheel, as seen in the diagram. Each section of the wheel is the same size.

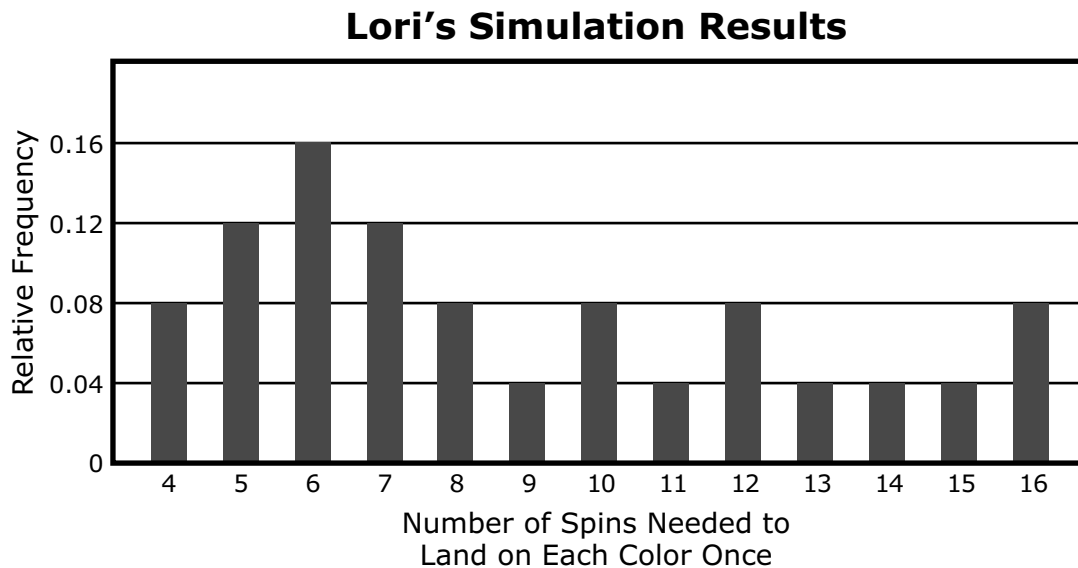


Lori wants to design a computer simulation to study how many spins it takes to land on each color once. Using the digits 0 through 9, she will assign a digit to each section of the wheel. Which option describes how the digits can be assigned?

- A. Assign the digit 0 to blue, 1 to yellow, 2 to red, and 3 to green.
- B. Assign the digit 4 to blue, 3 to yellow, 2 to red, and 1 to green.
- C. Assign the digits 0, 1, and 2 to blue; 3, 4, and 5 to yellow; 6, 7, and 8 to red; and 9 to green.
- D. Assign the digits 0, 1, 2, and 3 to blue; 4, 5, and 6 to yellow; 7 and 8 to red; and 9 to green.

**Part B**

Lori designs a computer simulation with 25 trials and uses the data from the simulation to create a graph. The graph shows the relative frequency of the number of spins in her simulation to land on each color once. Using the graph, what is the probability that a player lands on each color once in less than 7 spins?



Enter your answer in the box.

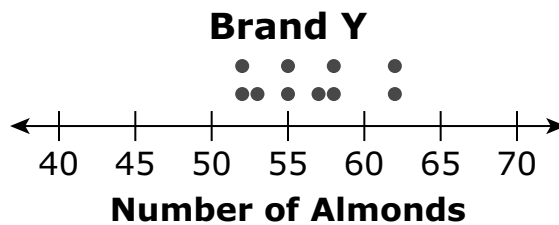
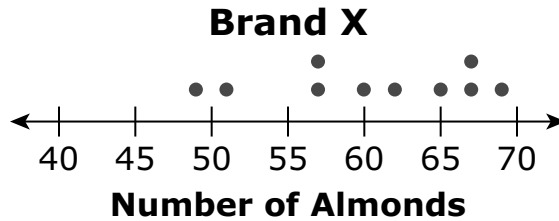
- 26.** Consider the equation $5 + x = n$.

What must be true about any value of x if n is a negative number? Explain your answer. Include an example with numbers to support your explanation.

Enter your answer, your explanation, and your example in the space provided.



27. Alexis chose a random sample of 10 jars of almonds from each of two different brands, X and Y. Each jar in the sample was the same size. She counted the number of almonds in each jar. Her results are shown in the plots.



Based on the plots, which statement **best** compares the number of almonds in the jars from the two brands?

- A. The number of almonds in jars from Brand X tends to be greater and more consistent than those from Brand Y.
- B. The number of almonds in jars from Brand X tends to be greater and less consistent than those from Brand Y.
- C. The number of almonds in jars from Brand X tends to be fewer and more consistent than those from Brand Y.
- D. The number of almonds in jars from Brand X tends to be fewer and less consistent than those from Brand Y.



Use the information provided to answer Part A and Part B for question 28.

A circular mirror has a diameter of 12 inches.

28. Part A

What is the area, in square inches, of the mirror?

- A. 6π
- B. 12π
- C. 36π
- D. 72π

Part B

A circular frame that is 3 inches wide surrounds the mirror.

What is the combined area, in square inches, of the circular mirror and the frame?

- A. 9π
- B. 18π
- C. 54π
- D. 81π



Use the information provided to answer Part A and Part B for question 29.

A worker has to drive her car as part of her job. She receives money from her company to pay for the gas she uses. The table shows a proportional relationship between y , the amount of money that the worker receives, and x , the number of work-related miles driven.

Mileage Rates

Distance Driven, x (miles)	Amount of Money Received, y (dollars)
25	12.75
35	17.85
40	20.40
50	25.50

29. Part A

Explain how to compute the amount of money the worker receives for any number of work-related miles. Based on your explanation, write an equation that can be used to determine the total amount of money, y , the worker receives for driving x work-related miles.

Enter your explanation and your equation in the space provided.

Part B

On Monday, the worker drove a total of 134 work-related and personal miles. She received \$32.13 for the work-related miles she drove on Monday. What percent of her total miles driven were work-related on Monday? Show or explain your work.

Enter your answer and your work or explanation in the space provided.



30. A right triangle has legs measuring 4.5 meters and 1.5 meters.

The lengths of the legs of a second triangle are proportional to the lengths of the legs of the first triangle.

Which could be the lengths of the legs of the second triangle?

Select **each** correct pair of lengths.

- A.** 6 m and 2 m
- B.** 8 m and 5 m
- C.** 7 m and 3.5 m
- D.** 10 m and 2.5 m
- E.** 11.25 m and 3.75 m



Use the information provided to answer Part A and Part B for question 31.

A teacher surveyed students in four classes to determine the location for a field trip. Each student chose only one location. The table shows the number of students from each class who chose each location.

Field Trip Choices

Class	Number of Students Who Chose the Zoo	Number of Students Who Chose the Museum	Number of Students Who Chose the Planetarium
Class E	10	9	8
Class F	8	11	11
Class G	12	8	5
Class H	6	10	8

31. Part A

Determine the percent of students in each class who chose the museum. What is the order, from **least** to **greatest**, of the percents for each class?

- A. Class E, Class F, Class G, Class H
- B. Class G, Class E, Class F, Class H
- C. Class G, Class E, Class H, Class F
- D. Class H, Class F, Class E, Class G

**Part B**

The total number of students who chose the zoo is how many times as great as the total number of students who chose the planetarium?

A. 1

B. $1\frac{1}{18}$

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

D. $1\frac{1}{9}$





You have come to the end of Unit 3 of the test.

- **Review your answers from Unit 3 only.**
- **Then, close your test booklet and answer document and raise your hand to turn in your test materials.**





7 - MTH

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