

Grade 7 – Standard Review

NATIONAL TRAINING NETWORK

2018

Name

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A.1

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.*

Question 1:

Ben is mixing red and yellow paint in order to get orange. To get the shade he wants, he mixed $\frac{1}{8}$ quart of red and $\frac{3}{4}$ quart of yellow. What is the unit rate of red paint to yellow paint? Explain how you found the unit rate.

Question 2:

Sarah rode her bike $2\frac{1}{2}$ miles in $\frac{1}{6}$ of an hour. What is her unit rate in miles per hour? Show your work and explain your answer.

Name

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A.2a

Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

Question 1:

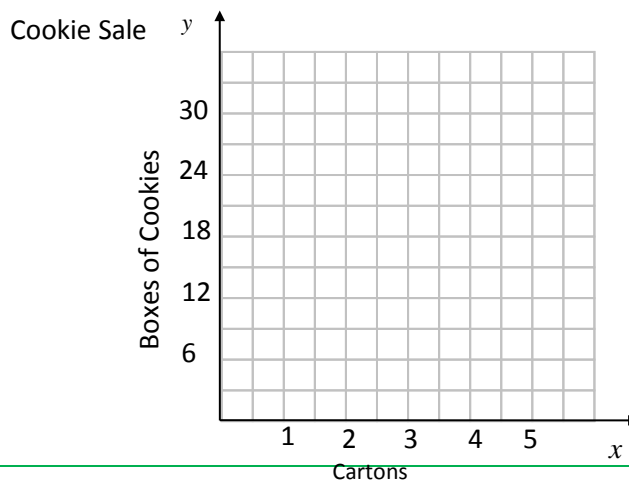
The table below shows the miles that boys club traveled on their bike trip last Saturday. Use the information given in the table to decide whether or not the miles and hours are in a proportional relationship. Explain your answer in terms of equivalent ratios.

Miles	10	18	27	32
Hours	1	2	3	4

Question 2:

The table below shows the relationship between the number of boxes of cookies and the number of cartons. Graph the value from the table on the coordinate plane and determine whether the two values are a proportional relationship. Explain your answer in terms of the line that is graphed.

Boxes of Cookies	6	12	18	24
Cartons	1	2	3	4



Name

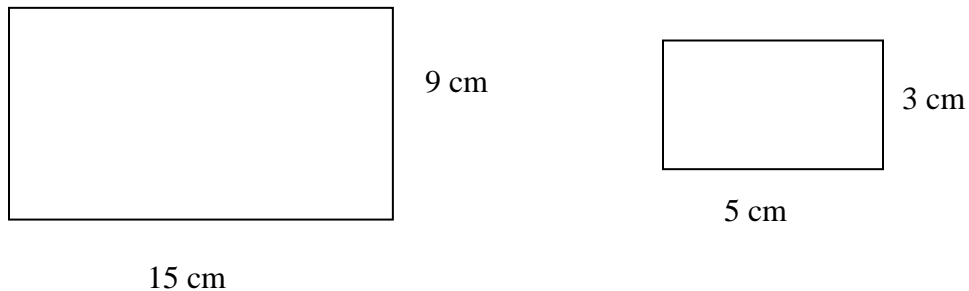
Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A.2b

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Question 1:

What is the constant of proportionality (unit rate) of the relationship between the larger and the smaller figure below? Justify your thinking by explaining how you determined the unit rate.



Question 2:

At the local movie theater you can buy a pack of 8 movie tickets for \$60.00. Scott likes to buy the book of tickets when he has the money because the normal price of a movie is \$9.00. What is the unit rate of the price of the movie tickets when Scott buys them in a pack of 8? Use a table or diagram to justify your answer and explain how you determined the unit rate.

Name

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A.2c

Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.*

Question 1:

Commercial airplanes fly at an average speed of 600 miles per hour. Write an equation that shows the number of miles traveled, m , in h hours.

Question 2:

Michelle is selling cookies for \$0.50 each at the bake sale. Write an equation that shows how much she will make, p , if she sells c cookies.

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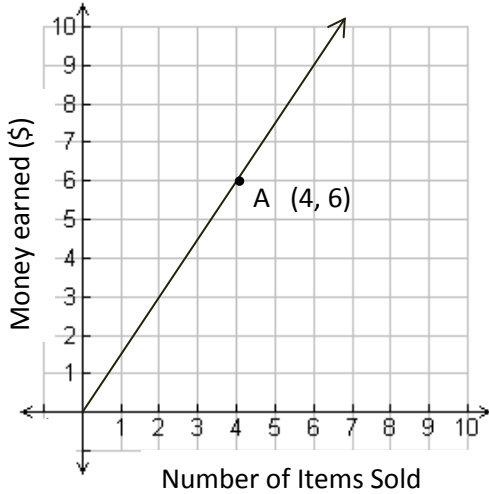
Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A.2d

Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.

Question 1:

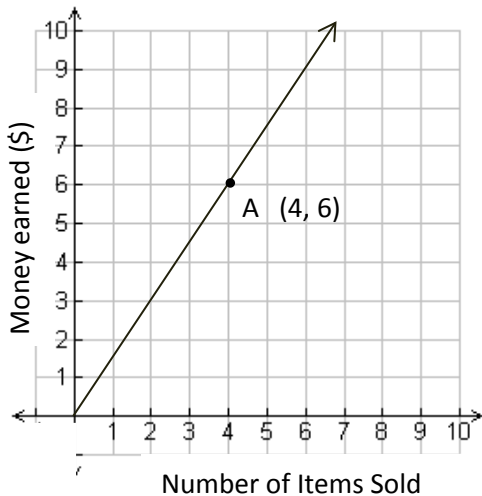
School Fundraiser



Explain what point A $(4, 6)$ on the graph represents in relationship to the items sold and money earned.

Question 2:

School Fundraiser



Identify and plot the unit rate on this graph. Label it point B. Explain in a complete sentence what the unit rate means in the context of this real world problem.

Name

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A.3

Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

Question 1:

Mae Lee is going to buy a new car. The car she wants costs \$24,599. She has \$5,000 to use as a down payment and will take a loan out for the rest. The interest rate on the loan is 4.25% for 5 years. How much interest will Mae Lee pay in all? Round your answer to the nearest cent. Show all your work and explain each step.

Question 2:

Dylan is going shopping for a new computer. The computer he wants costs \$799.99, but is on sale for 30% off. If sales tax in his state is 8%, how much is Dylan going to spend in all for the computer? Round your answer to the nearest cent. Show all your work and explain each step.

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.1a

Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charges because its two constituents are oppositely charged.*

Question 1:

During 1 week, a stock's price rose \$0.50 on Monday and \$1.15 on Tuesday. The price then dropped \$0.75 on Wednesday and dropped another \$1.10 on Thursday. How much will the stock need to rise on Friday if it finished the week at the same price it started out as? Explain your answer using a number line or other model.

Question 2:

At work one day, Ricardo had to go down 3 floors to go to a meeting. Then he had to go up 7 floors for another meeting. What will Ricardo need to do to get back to the floor where he started? Justify your answer using a model or picture.

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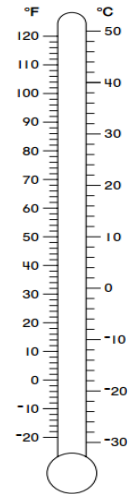
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.1b

Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

Question 1:

The temperature at 6:00 am was -12°F . Throughout the day, the temperature rose 38 degrees. Show on the thermometer what the temperature was at the end of the day.



Question 2:

Wayne and Kim were digging in the sand at the beach. Wayne dug a hole that was 12 inches deep, and Kim dug a hole that was 9 inches deeper than Wayne's. How deep was the hole that Kim dug? Justify your answer by using a model or picture and explain your thinking.

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.1c

Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

Question 1:

The highest temperature ever recorded in Alaska is 100°F . The lowest temperature ever recorded in Alaska is -80°F . What is the difference in these temperatures? Create a model to explain your answer.

Question 2:

Sarah is a cliff diver. She starts 75 feet above the water, dives and dives to 20 feet below the water. Jada also starts 75 feet above the water, but only dives to 17 feet below the water. Explain your answer and use a number line or other model to defend your thinking.

- a.) What is the total distance traveled by both divers?
- b.) What is the difference in the distances traveled by each diver?

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.1d

Apply properties of operations as strategies to add and subtract rational numbers.

Question 1:

To play a game, Andrea puts her game piece on the board at START. On her first turn, she moves her game piece ahead 11 spaces. On her second turn, Andrea moves her game piece back 8 spaces. On her third turn, she moves her piece forward 9 spaces. How many spaces away from START is her game piece now? Explain how you determined your answer.

Question 2:

The Scream is a new roller coaster at the amusement park near Collette's house. In the first 30 seconds, it carries you up a 150-meter hill, drops you 85 meters down, and quickly takes you back up a 50-meter hill. How much higher or lower from the start of the ride are you after these 30 seconds? Show your work and explain your thinking.

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.2a

Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

Question 1:

The outside temperature is -6°F and falling at a rate of 4 degrees per hour. What will the temperature be in 3 hours? Describe the plan that you followed to determine your answer.

Question 2:

For each kilometer above Earth's surface, the temperature decreases 7°C . If the temperature at Earth's surface is 14°C , what will be the temperature 9 kilometers above the surface? Apply what you know about adding integers to determine the temperature.

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.2b

Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.

Question 1:

Marissa's scores in golf for this season are -1 , -3 , 1 , -1 , -2 , and 0 . What is her average score for the season? Select the appropriate operations to determine the average score and explain the steps you followed.

Question 2:

Judges in horseback riding competitions give a mandatory 3 point deduction for each jump missed during the competition. Shantal has participated in 7 competitions this year and has been given a total of -36 points for jumps missed. How many jumps did she miss? Explain the plan to follow to determine the number of jumps missed.

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.2c

Apply properties of operations as strategies to multiply and divide rational numbers.

Question 1:

Solve the following problem and explain the process you followed. Defend your answer based on the properties of operations.

$$(-0.2 \cdot 3.6) \cdot -10$$

Question 2:

Study the two expressions below. Determine whether they are equivalent. Justify your answer by applying the properties of operations.

$$\frac{1}{2}(200 \div 40)$$

$$\left(\frac{1}{2} \times 200\right) \div \left(\frac{1}{2} \times 40\right)$$

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.2d

Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

Question 1:

Convert $\frac{9}{11}$ into a decimal using division. Is this a rational number? Model the long division and explain your answer.

Question 2:

Convert $8\frac{3}{16}$ to a decimal. Is this a rational number? Model the long division and explain your answer.

Name

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.NS.A.3

Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)

Question 1:

Marco is trying to lose weight before his wrestling match. He wants to lose $2\frac{3}{8}$ pounds on each of the 5 days prior to the match.

- a.) What will the total weight loss be for the 5 days? Justify your answer.

- b.) If he weighs 165 pounds now, how much will he weigh after he loses the weight? Show your work.

Question 2:

Li has \$125 in her bank account. Over the next few weeks, she made 6 withdrawals and her account balance is now \$5.00. If she withdrew the same amount each time, how much was each withdrawal? Apply the properties of operations and explain your answer.

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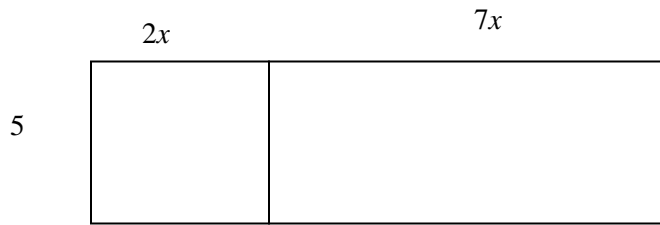
Use properties of operations to generate equivalent expressions.

7.EE.A.1

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Question 1:

What is the area of the composite figure below? Explain your answer and show your work.



Question 2:

An equilateral triangle has a side length measure that is represented by $2x + 4$. What is the perimeter of the triangle? Create a model to explain your answer.

Name

Use properties of operations to generate equivalent expressions.

7.EE.A.2

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”

Question 1:

Michael and Michelle are at a restaurant. When leaving, they decide to leave an 18% tip. Michael states that in order to figure out their total, they need to multiply their bill by 0.18 and add that product on to the bill. Michelle says that another way to figure their total is to multiply their bill by 1.18. Will Michelle’s method work? Explain why or why not.

Question 2:

Jessica is shopping for a new sweater for her mom’s birthday present. The one she wants is on sale for 30% off. She estimated the sale price by multiplying the original price by 0.7. Explain why this method will or won’t work.

Name

Use properties of operations to generate equivalent expressions.

7.EE.B.3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

Question 1:

Jace and his father are going to the hardware store for some new tools. They bought a new drill for \$49.99, new drill bits for \$12.99 and a new saw for \$15.99. For using the store's credit card, they receive a 5% discount. Jace's father also has a coupon for \$10.00 off any purchase totaling \$50.00 or more. Without tax, how much did they spend at the store? Show your work and round your answer to the nearest cent.

Question 2:

Aunt Jane has a vegetable garden that is 10 feet long and 12 feet wide. She wants to expand the garden next year to be able to grow more vegetables, so she plans to extend the length and width each by $1\frac{2}{3}$ feet. What will the area of next year's garden be? By what percent with the garden have grown? Show your work. Round to the nearest whole number percent.

Name

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

7.EE.B.4a

Solve word problems leading to equations of the form $px+q=r$ and $p(x+q)=r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

Question 1:

A taxi charges \$10.00 for a pick up and \$1.25 per mile traveled. If Jason paid the driver \$31.25, write and solve an equation to determine the distance he rode in the taxi.

Question 2:

Admission to the county fair is \$4.50. Tickets for the rides are \$0.50 each. If Joanna has \$11.00, write and solve an equation to determine the number of ride tickets she can purchase.

Name

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

7.EE.B.4b

Solve word problems leading to inequalities of the form $px+q>r$ or $px+q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Question 1:

A furniture rental store charges a down-payment of \$150 and \$65 per month for a new dining room table and chairs. If Heather wants to spend no more than \$735.00 on the furniture, what is the greatest number of months she can rent it? Write and solve the inequality and graph the solution on a number line.

Question 2:

At the charity drive, Jeremiah must stuff at least 350 bags with cans of food. He can stuff 4 bags in one minute, and he has 90 bags already finished. Write and solve an inequality to determine what is the least amount of time it will take Jeremiah to complete the task. Justify your solution by graphing it on a number line.

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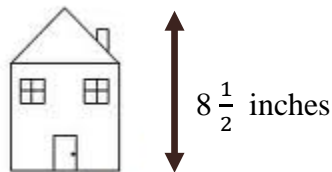
Draw, constructs, and describes geometrical figures and describes the relationships between them.

7.G.A.1

Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

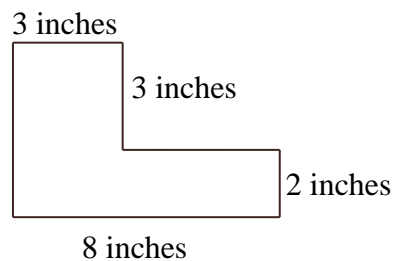
Question 1:

The scale on diagram below is 3 inches = $7\frac{1}{2}$ feet. How tall is the actual house? Select a strategy to determine your solution and explain how you solved the problem.



Question 2:

Manuel is planning on carpeting his living room represented below. If new carpet costs \$1.25 per square foot, how much will he spend? Explain how you solved the problem.



Scale: 1 inch = 1.75 feet

Name

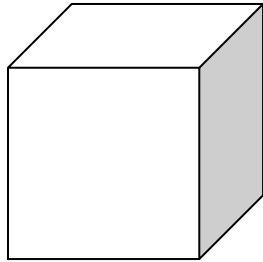
Draw, constructs, and describes geometrical figures and describes the relationships between them.

7.G.A.3

Describe the two-dimensional figures that result from slicing three dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids

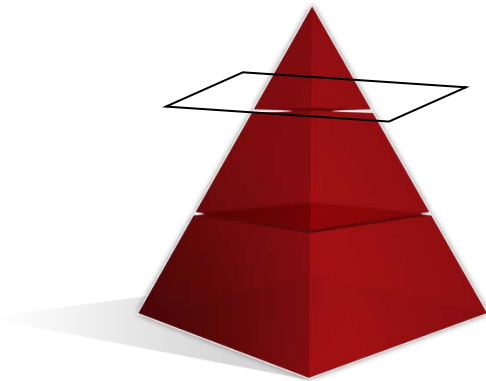
Question 1:

Name the shape of the cross section that will result from slicing the cube in a horizontal direction.



Question 2:

Name the shape of the cross section that will result from the slicing the rectangle pyramid with a horizontal plane.



Name

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

7.G.B.4

Know the formulas for the area and circumference of a circle and solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

Question 1:

A circular garden has an area of approximately 153.86 square feet. Iris wants to put a fence around the garden. How much fencing does she need to enclose the garden? Explain how to apply the formulas for area and circumference of a circle to determine the length of fencing. Use 3.14 for π .

Question 2:

The London Eye, the tallest Ferris wheel in Europe, has a radius of 60 meters. If one ride on the London Eye is 5 revolutions, what is the total distance traveled? Use 3.14 for π . Create a model and justify your answer using the formula for circumference of a circle.

Name

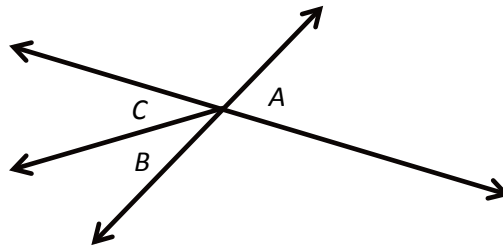
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

7.G.B.5

Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

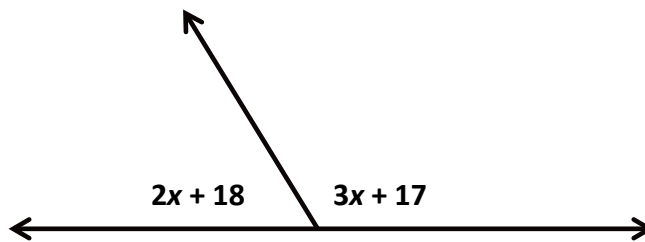
Question 1:

Find the measure of angle C if $m\angle A = 83^\circ$ and $m\angle B = 37^\circ$. Write an equation and determine the measure of angle C .



Question 2:

Apply your understanding of angle relationships, write an equation and determine the measure of each angle.



Name

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

7.G.B.6

Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Question 1:

A cereal box has a length of $7\frac{1}{2}$ inches, a width of $2\frac{1}{4}$ inches, and a height of 11 inches. What is the volume of the cereal box? Explain how you will solve the problem.

Question 2:

Trevor is painting the front door of his house. The dimensions of the door are $8\frac{1}{2}$ feet by $2\frac{1}{2}$ feet by 3 inches. If he paints all of the surfaces with 2 coats of paint, how much total area will he paint? Show your work and explain how you solved the problem.

Name

Use random sampling to draw inferences about a population.

7.SP.A.1

Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

Question 1:

The owner of an arcade wants to increase the number of teens who come in. He is thinking about offering a club membership to teens. Club members would get a discount on games if they come in at least once a week. Which of the following survey methods would be most appropriate to find out if teens would be interested in this idea? Explain your answer.

- a.) Mail a survey to 400 residents in the city.
- b.) Hand out a survey to each person who comes in to the arcade.
- c.) Leave surveys in the administration office at middle schools and high schools in the city.
- d.) Use the phone book and randomly call numbers until he reaches 100 households with teens in the city.

Question 2:

A software company created a computer game that helps middle school students learn math skills. In which sample population should the company test the game to see if students like it? Explain your answer.

- a.) middle schools in each of the geographic regions of a single state
- b.) middle schools in three or four major metropolitan areas in the southern states
- c.) middle schools in each region of the United States, including the Northeast, the Northwest, the Southwest, the Southeast, and the Midwest
- d.) middle schools in two coastal states, the Midwest, and either Alaska or Hawaii

Name

Use random sampling to draw inferences about a population.

7.SP.A.2

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Question 1:

Mrs. Boggs' class is selling candy bars to raise money for new playground equipment. The first 15 students recorded the amount of money they raised.

Amount raised (\$)
55, 45, 57, 10, 59, 55, 60, 49, 52, 53, 40, 56, 63 56, 70

If there are 22 students in the class, predict how much money was raised for the new equipment. Explain your answer.

Question 2:

The school store is selling new T-shirts and recorded the sales for the first 2 days in the table below.

Size	Number of Shirts Sold
Small	9
Medium	15
Large	26

The store predicts they will sell a total of 250 T-shirts. Based on the data, about how many large shirts should they sell? Explain your answer.

Name

Use random sampling to draw inferences about a population.

7.SP.B.3

Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*

Question 1:

Mrs. Shields polled her students to find out how long they studied for their last math test. She then recorded the number of questions answered correctly by each student on the table based on those results.

Less than 1 hour	25, 18, 14, 27, 25, 14, 18, 25, 23
At least 1 hour	42, 35, 27, 42, 38, 35, 29, 24

Create a dot plot below using the two data sets. What can you conclude from the dot plot?

Question 2:

Using the data from Question 1 answer the following questions.

- What is the difference in the means of the two sets of data? Show your work.
- What is the mean absolute deviation for each set of data? Show your work.
- Which set of data has more variability? Explain your answer and defend your thinking using the statistical data from the graph.

Name _____

Draw informal comparative inferences about two populations.

7.SP.B.4

Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*

Question 1:

To help decide which ending to use for his movie, the director showed both ending he filmed to 50 people and had them rate them from 1 to 100. The box and whisker plots below show a summary of the results. Complete the chart to compare the measures of variation of both endings.



	First Ending	Second Ending
Median		
Range		
Lower Quartile		
Upper Quartile		
Interquartile Range		

Question 2:

Using the data from the chart in Question 1, what can you conclude about which ending the director should use for the movie?

Name

Investigate chance processes and develop, use, and evaluate probability models.

7.SP.C.5

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

Question 1:

Lucas has 12 identical cans without labels. He knows that he has 3 cans of peas, 5 cans of corn, 1 can of carrots, and 3 cans of beets. He opens one can. How likely is it that Lucas will open a can of carrots? Justify your answer modeling the likelihood on a number line.

Question 2:

Erika has a jar of plastic paper clips that she keeps on her desk. There are 10 green, 8 yellow, 15 blue, 4 orange, 2 purple, and 5 pink paper clips in the jar. If Erika selects a paper clip from the jar at random, which color will she most likely select? Explain your answer.

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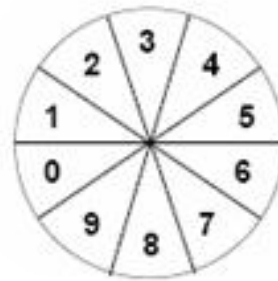
Investigate chance processes and develop, use, and evaluate probability models.

7.SP.C.6

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*

Question 1:

The spinner shown below is spun 50 times. How many times would you expect it to land on 3? Explain your answer.



Question 2:

30 students were asked what they did immediately after school and the results were recorded in the table.

- a.) What is the probability that a student's after school activity is Watching T.V.? Show your work.
- b.) If 100 students were surveyed, how many would you expect to answer Watching T.V.? Show your work.

After School Activity	Tally
Sports	
Video Games	
Watch T.V.	
Homework	

Name

Investigate chance processes and develop, use, and evaluate probability models.

7.SP.C.7b

Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*

Question 1:

Tess and Ivy are conducting an experiment with a fair number cube labeled 1 – 6. They rolled the cube 60 times and recorded the results in the table.

- a.) How many times should they expect to roll a 2?
- b.) Based on the data, how many times did they roll a 2? How does this compare to how many they were expecting?
- c.) Which number did they roll the same amount as they were expecting?

Number Rolled	Tally
1	### ##
2	### ##
3	###
4	###
5	### ##
6	###

Question 2:

A spinner is divided into 4 equal sections labeled Blue, Red, Green and Yellow. It is spun 100 with the results recorded in the table. Which color's experimental probability is closest to its theoretical probability? Explain your answer.

Color Spun	Tally
Blue	### ## ## ## ##
Red	### ## ## ##
Yellow	### ## ## ## ##
Green	### ## ## ##

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7.SP.C.8a

Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

Question 1:

Suppose you toss a coin and roll a number cube labeled 1 – 6. What is the probability of getting a heads on the coin and rolling an even number? Explain how to determine the probability of the compound events.

Question 2:

A jar has 3 red, 5 blue and 12 black marbles. What is the probability of choosing a red marble, not replacing it, and then choosing another red marble? Show your work and explain your answer.

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7.SP.C.8b

Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.

Question 1:

Marcia is trying to figure out how many different outfits she can make with the new clothes she just bought. She bought a pair of blue pants, a pair of tan pants and a skirt. She also bought a white blouse, a red blouse, a pair of sandals and a pair of sneakers. Draw a tree diagram that shows the sample space.

Question 2:

Create a list and a table to model all the possible outcomes for flipping a coin and rolling a fair number cube with the numbers 1 – 6.

