

7th Grade LA and Social Studies Summer Packet

1. Choose a social studies book from the suggested list of summer reading books. To satisfy your Social Studies requirement, you must select a book from the following historical fiction options.

- ❖ *Amelia's War* by Ann Rinaldi
- ❖ *Weasel* by Cynthia DeFelice
- ❖ *Ghost Cadet* by Elaine Marie Alphin
- ❖ *Who Comes with Cannons?* By Patricia Beatty
- ❖ *A Stitch in Time* by Ann Rinaldi

2. Choose a LA book from the suggested list of summer reading books. If you prefer, you may choose a second historical fiction novel to satisfy your Language Arts requirement.

- ❖ *The Journal of Jasper Jonathan Pierce* by Ann Rinaldi
- ❖ *The Journal of Sean Sullivan* by William Durbin
- ❖ *I Thought My Soul Would Rise and Fly* by Joyce Hansen
- ❖ *Peter Raven Under Fire* by Michael Molloy
- ❖ *The Ruby in the Smoke* by Philip Pullman

3. Complete enough activities to earn 10 points.

- ❖ Write a book review. Make sure your work is not copied from someone else (another student or the internet). Use the following website as a template. You must print out a copy to bring to school, but you may also publish a review online. (10 points)
<http://teacher.scholastic.com/writewit/bookrev/index.htm>
- ❖ Create a book jacket for your selected book. Be sure to include a brief summary, biography of the author, and a visual on the cover (handmade, not computer generated). (5 points)
- ❖ Create a diorama depicting an important scene from your book. Write a solid paragraph (minimum 5 sentences) explaining your choice. (5 points)
- ❖ Create a mobile including the following items: a character description with illustration, one setting and illustration, one quotation and explanation of importance, one theme and include one example. (5 points)

7th Grade Life Science Summer Activities

Mission: To earn 10 points

Directions: Define the following life science terms for each category (Processes of Life, Environment, and Scientific Knowledge). After you understand the key terms, create your own crossword puzzle using the terms and definitions. Each crossword puzzle you create is worth 5 points. You can use the following site to create the puzzle: <http://www.puzzle-maker.com>. Definitions and puzzles must be submitted to receive points for this activity.

Process of Life:

1. Life Cycle
2. Cell
3. Organelle
4. Chloroplast
5. Nucleus
6. Cell Membrane
7. Mitochondria
8. Ribosomes
9. Cytoplasm
10. Binary Fission
11. Mitosis
12. Meiosis
13. Tissue
14. Organ
15. System
16. Homeostasis
17. Asexual Reproduction
18. Sexual Reproduction
19. Gene
20. Chromosomes
21. Evolution
22. Natural Selection
23. Adaptation
24. Species
25. Darwin's Theory

Environment:

1. Virus
2. Bacteria
3. Classification
4. Ecosystem
5. Trophic Level
6. Species

7. Population

8. Community
9. Predation
10. Competition
11. Symbiosis
12. Nutrient
13. Abiotic Factors
14. Biotic Factors
15. Carrying Capacity
16. Biodiversity
17. Renewable Resource
18. Nonrenewable Resource
19. Pollution
20. Evaporation
21. Condensation
22. Precipitation
23. Producer
24. Consumer
25. Decomposer

Scientific Knowledge:

1. Scientific Method
2. Hypothesis
3. Experiment
4. Variable
5. Independent variable
6. Dependent variable
7. Control Group
8. Experimental Group
9. Validity
10. Theory

Directions: Complete a scientific investigation of your choice (this means make up your own Experiment). Each investigation is worth 5 points and you may complete numerous investigations.

Independent Investigation

Name _____

Question

What do you want to find out?

Hypothesis

What do you think will happen?

Procedure

Design your experiment! Write the steps for your experiment in the space below.

Safety Rules

What safety rules do you need to follow during your experiment?

Data

Create a table, chart, or graph to record your data.

Conclusion/Analysis

What did you find out? Did your results support your hypothesis? Are your results reliable?

Summer work for upcoming 7th graders

Complete 40 questions to earn 10 points. They do not have to be consecutive (that means you can pick any 40 questions you want!).

Short Answer

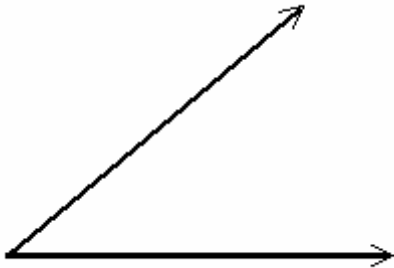
1. Display the data in a double bar graph.

Favorite Color	Boys	Girls
Purple	3	2
Green	7	6
Pink	1	4
Blue	5	8

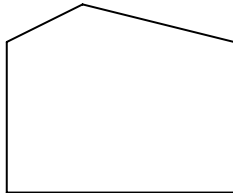
2. Construct the perpendicular bisector of the segment.



3. Construct the angle bisector.



4. Does the figure tessellate? Use a drawing to support your answer.



5. Suppose you choose one card without looking. Find the odds in favor and the odds against the event that you select the letter J.



- A bag contains 9 green marbles and 5 yellow marbles. Suppose you choose one marble. What are the odds *against* picking a yellow marble?
- Use the Sieve of Eratosthenes to find the prime numbers between 50 and 80.

Draw models for the pair of decimals. Which number is greater?

- 0.9 and 0.09
- Rubber stripping for a trailer needs to be exactly 2.93 meters long. About how many of these pieces can be cut from a 12-meter length of rubber stripping? Estimate by using compatible numbers.

Write the next three terms and write a rule to describe the number pattern.

- 62,500, 12,500, 2,500, 500, . . .
- 0.57, 0.66, 0.75, 0.84, . . .
- Write an algebraic expression for the word phrase.

the sum of 17 and twice a number n

- A CD collection advertised on television is available for a shipping charge of \$8.77, plus \$17 per individual CD. Write an expression for how much it costs to order n CDs.
- Write a variable expression for the perimeter of the rectangle below.



- An apartment costs \$450 a month to rent, plus a \$400 security deposit. Write an expression for the cost of renting for m months.
- A cellular phone company charges \$37 a month plus a \$19 activation fee.
 - Write an expression for the total cost for m months of service.
 - Evaluate your expression for 7 months.

Tell whether the equation is true or false.

- $\underline{8 + 17 - 9 = 63 \div 7}$
- $49 \div 7 = 7$

Write and solve an equation for the situation. Check the solution.

- A gardener measures the tallest of his prize-winning sunflowers and finds that the height is 63 in. The sunflower has grown 12.3 in. since the last time the gardener measured it. How tall was the sunflower when it was last measured?
- At the Last Chance Filling Station, gas costs \$1.50 a gallon. Trevor paid \$19.50 to fill his tank. How many gallons of gas did he buy?

21. One inch equals 2.54 centimeters. Write an equation for the number of inches x in 15 centimeters. Round to the nearest hundredth.
22. Write the quotient $6^7 \div 6^2$ using an exponent.
23. A gallon of paint costs \$14.98. A homeowner buys 6 gallons of paint. Show how to use the Distributive Property to calculate the total cost of the paint. There is no tax.
24. Test 56,143 for divisibility by 5.
25. The length of the Boston Marathon is 138,435 ft. Each stride, or step, by a particular runner is 3 ft long. Does the number of strides the runner takes fit evenly into the length of the race? Explain.
26. Is 78 prime or composite? Explain.
27. A gardener wants to plant sunflowers in a rectangular array. She wants the number of rows to be less than or equal to the number of columns. List all possible ways she can plant 28 flowers.
28. One garden supply company will sell $2\frac{3}{5}$ cubic yards of topsoil for the same price that another company charges for $2\frac{9}{15}$ cubic yards. Assuming the soils are equally good, is either one a better buy?

Solve the problem using the strategy Try, Check, and Revise.

29. Maria sells magazine subscriptions. She sold 42 subscriptions in all. She sold one less *Student Life* subscription than *Xtreme Sports* subscriptions. Her total sales were \$941. Use the data in the table. How many *Music Craze* subscriptions did Maria sell?

Magazine	Subscription Cost
<i>Student Life</i>	\$12
<i>Xtreme Sports</i>	\$25
<i>Music Craze</i>	\$29

30. The difference of two numbers is 13. Four times the smaller number plus three times the larger number is 88. Find the numbers.
31. Tony and his three brothers and sisters chipped in to buy their parents a gift. If the gift cost \$52, could they each have contributed the same amount to the gift? Explain.
32. Maya's school held an aluminum collection program in which they collected aluminum and brought it to be recycled. In the first week, Maya collected $\frac{2}{8}$ lb of aluminum and her friend Abigail collected $\frac{3}{4}$ lb.
 - a. Which girl collected more aluminum?
 - b. How much aluminum did the two girls collect?
33. Elizabeth walks 8 miles for a charity event. She walks half the distance during the first two hours and a fourth of the remaining distance during the next half hour. How far does she have to go to complete the walk?
34. Write 4 sums, each with a different denominator, that will equal $\frac{3}{4}$ when simplified.
35. Complete the following statement.

If a whole number is greater than 1, its reciprocal is between ___ and ___.

36. The sum of three consecutive odd numbers is 81. Find the numbers.
37. An 18-ounce box of cereal costs \$4.14. A 36-ounce box of the same cereal costs \$5.40.
- Find the unit price for each size.
 - Explain which is the better buy.
38. In a survey at a supermarket, $\frac{3}{4}$ of the people surveyed said that they shopped more than once a week.
- What percent of the people show more than once a week?
 - What percent of the people shop only once a week or less?
39. Estimate a 20% tip for \$31.15.
40. You buy shoes for \$56.22. The sales tax rate is 6%. Estimate the sales tax and the total cost. Show your work.
41. Reggie is going to make a scale model of a *Tyrannosaurus rex* dinosaur. *Tyrannosaurus rex* was 46 ft long, 20 ft high, and had teeth that were 6 in. long. The model should be no more than 8 inches tall. What scale should he use? Explain.

42. The number of brothers and sisters (siblings) that each member of a class has is shown below.

1, 2, 2, 0, 1, 3, 1, 1, 2, 4, 0, 0, 2, 2, 1, 1, 0, 4, 3, 6

Organize the set of data by making a frequency table.

43. A class survey revealed that the members of the class had been born in Oregon (O), Washington (W), Idaho (I), California (C), Utah (U), and Florida (F). The data below show where each member of the class was born.
- Make a frequency table.
 - Use the table to find the mode of the birth places.

U, I, W, O, C, W, U, F, W, W, I, C, U, U, I, C, W, U, O, I, U, C, O, U, C, W, F, O, U, I

44. The numbers below represent the number of catalogs received each year by ten families.

41, 43, 38, 41, 40, 46, 37, 37, 46, 45

- Make a line plot to organize the data.
 - Find the range.
45. Make a line plot of the math quiz scores listed below.
- 2, 8, 5, 3, 3, 5, 8, 4, 9, 2, 8, 8, 9, 3, 6, 6, 5, 5, 8, 2, 4, 2, 9, 4, 10
46. In 1990, of the 3,219,000 sales of existing one-family houses in the United States, 458,000 were in the Northeast, 809,000 were in the Midwest, 1,193,000 were in the South, and 759,000 were in the West. Make a circle graph showing the sales in each region of the U.S.
(Source: *Statistical Abstract of the U.S.*, 2001)
47. The list shows the final exam grades for Mrs. Garcia's history class.

67, 96, 50, 78, 51, 64, 73, 75, 99, 62, 79, 88, 86, 54, 52, 93, 55, 50, 91, 97

Make a stem-and-leaf plot for the data.

48. This table shows the temperatures at 9:00 A.M. each day for 5 days during one week of December in Omberton. Make a line graph of the data in the table.

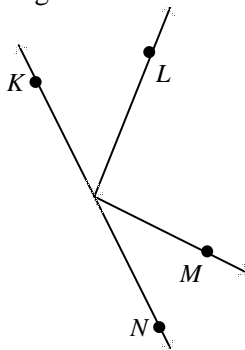
Day	Temperature ($^{\circ}\text{F}$)
Mon	24
Tue	28
Wed	27
Thu	16
Fri	26

49. The list below shows how each student in a class got to school today.

family car	car pool	bus	walked
bus	walked	car pool	walked
biked	car pool	walked	biked
walked	biked	biked	car pool
biked	bus	family car	car pool
bus	family car	family car	bus

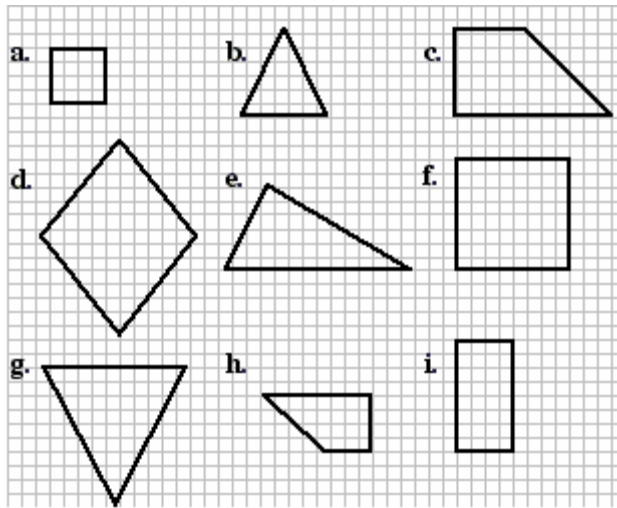
Make a frequency table for the set of data

50. Use the diagram below.



- Name 3 noncollinear points.
- Name 3 collinear points.
- Name 2 rays.

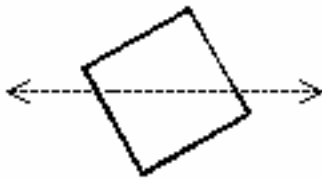
51. List the pairs of figures below that appear to be similar.



52. Fill in the blank with *always*, *sometimes*, or *never* to make the statement true.

Similar polygons are _____ the same shape.

53. Suppose you must replace the tire on a bicycle. Should the replacement be congruent to or similar to the original tire? Explain.
54. Is the dashed line in the figure a line of symmetry? Explain.

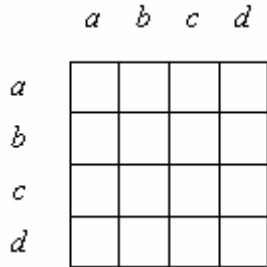


55. Is the second figure a rotation of the first figure?

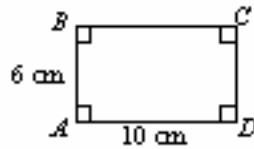
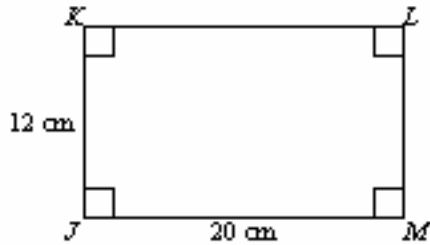


56. Use the clues to complete a 4-by-4 word square.

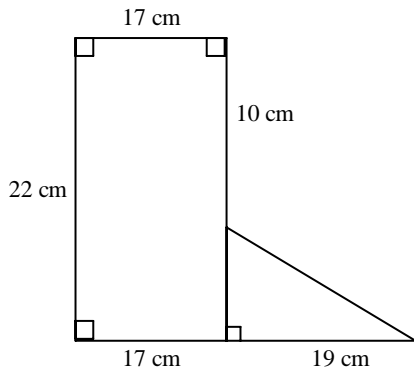
- a. Speed
- b. Surface measurement
- c. Second digit from the right in a whole number
- d. Not west



57. Are the rectangles $KLMJ$ and $BCDA$ similar? Justify your answer.

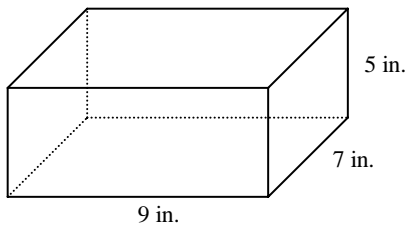


58. Use the figure, which is not drawn to scale.



- a. What is the area of the rectangle?
- b. What is the area of the triangle?
- c. Find the area of the complex figure.

59. Draw a net for the figure. Label the net with its dimensions.



60. Graph $P(-4, 1)$ on a coordinate plane.

61. Maxine travels often for her job. The table below shows her air travel mileage for the last six months of 1997 and 1998. Draw a double line graph which matches the table.

Air Travel Mileage	July	Aug.	Sept.	Oct.	Nov.	Dec.
1997 Miles	2,500	1,000	3,500	2,000	2,000	2,000
1998 Miles	3,500	3,500	1,500	3,000	2,500	2,000

62. Complete the function table given the rule.
output = input \times 10

Input	Output
-11	■
-4	■
1	■
11	■

63. Complete the function table. Then write a rule for the function.

Input	Output
-3	■
-2	-5
-1	■
0	■
1	-2

64. a. Complete the function table for $y = -\frac{1}{2}x + 1$.

Input x	Ouput y
-8	■
-4	■
0	■

b. Graph the function.

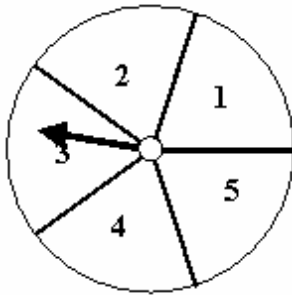
65. Make a table and graph the function. Use x -values $-2, -1, 0, 1, 2$.
 $y = 2x + 3$

66. You mix the letters S, E, M, I, T, R, O, P, I, C, A, and L thoroughly. Without looking, you draw one letter. Find the probability $P(I)$. Write the probability as:
- a fraction in simplest form
 - a decimal
 - a percent
67. Patrick says that the probability of rolling a 7 on a number cube is $\frac{1}{6}$, since all numbers are equally likely to occur. Danny says that the probability of rolling a 7 is 0. With whom do you agree? Explain.

Find the probability of the event. Write the answer as a fraction in simplest form, a decimal rounded to the nearest hundredth if necessary, and a percent rounded to the nearest percent. Classify the event as impossible, less likely, more likely, or certain.

68. The sum of the numbers rolled on two standard number cubes is 2.
69. A number cube is rolled 450 times. The number 3 comes up 69 times.
- What is the theoretical probability of rolling a 3? Write your answer as a fraction in simplest form.
 - What is the experimental probability of rolling a 3? Write your answer as a fraction in simplest form.

Use the spinner to find the probability.



70. You spin the spinner a number of times and record your results in the table.

Spinner outcome	Number of occurrences
1	20
2	10
3	11
4	10
5	18

- Find the experimental probability of spinning 1.
- Find the experimental probability of spinning 2.
- Which outcome is more likely according to the experimental probability? Explain.

The chart shows the results of spinning a spinner 66 times.

Outcome	1	2	3	4	5
Number of Times Spun	10	11	10	18	17

71. You use the spinner to play a game where Player A wins when the number is odd and Player B wins when the number is even. Is the game fair? Explain.
72. You use the spinner to play a game where Player A wins when the number is 1 or 2 and Player B wins when the number is 4 or 5. Is the game fair? Explain.
73. The owners of an amusement park have hired you to find out if visitors will return to their park. You find that 45,000 people visit the park during a given week. When you ask 1,000 people at random whether or not they will return, 750 say yes, 150 say no, and 100 say they are unsure.
- Organize the results of your survey into a chart.
 - Summarize your findings and explain to the owners how you are able to predict the total number of visitors that plan to return to the park.
74. Adam took a true-or-false test. He did not feel well the night before and could not study. Adam did not know the answers to any of the ten questions, so he guessed them at random.
- How can you use coins to simulate this problem?
 - Find the experimental probability that he will get exactly 7 of the 10 questions correct.
75. On Friday nights the local diner serves three main entrees, each with a choice of vegetable. The entrees are beef, chicken, and fish. The vegetables are spinach, broccoli, and carrots. How many possible dinners does the diner serve? List them.
76. The Medeiros family want to display the school pictures of their 6 children on the wall of their living room. They want to hang the pictures horizontally in a row. Explain how to determine the number of possible arrangements.
77. Determine whether each pair of events is independent. If not, explain why not.
- The names of all the people at a party one night are put into a hat for a raffle. The first name picked wins the grand prize and is not eligible for any other prizes. The second name picked wins the runner-up prize.
 - There are ten rubber balls in a bin. Each ball is a different color. Loni is the first to take a ball and selects a blue one. Erica is the second to take a ball and selects a red one.
 - Jordan stayed up late last night watching television. Jordan did poorly on his quiz in the morning.
 - Carlos tosses a coin that comes up heads. Jennifer tosses a coin that also comes up heads.

Write an inequality to represent the situation. Then graph the inequality.

78. Tina can type at least 50 words per minute.
79. Graph the solution of the inequality $x > 1$.

Tell whether the number is rational or not rational.

80. $\frac{2}{9}$

Essay

81. The weights of some award-winning fruits and vegetables are shown in the chart below. Organize the fruits and vegetables into a new chart in order of weight. Include the difference in weight between successive items.

Item	Potato	Celery	Pumpkin	Turnip
Weight (lb)	$7\frac{1}{16}$	$46\frac{1}{16}$	$816\frac{1}{2}$	$48\frac{3}{4}$
Item	Pineapple	Onion	Garlic	Grapefruit
Weight (lb)	$17\frac{1}{2}$	$10\frac{7}{8}$	$2\frac{5}{8}$	$3\frac{1}{8}$

Source: *The Guinness Book of World Records*

82. You are wrapping boxes for a fundraiser. You have 87 large boxes. You need $2\frac{3}{4}$ feet of ribbon for each large box. You have 48 small boxes. You need $1\frac{5}{6}$ feet of ribbon for each small box. Each roll of ribbon has 50 yards of ribbon.
- Estimate the number of rolls of ribbon you will need. Show your work and justify your estimate.
 - Find the exact number of feet of ribbon you will need. Show your work.
 - Find the number of rolls of ribbon you need to buy. Does it differ from your estimate? Explain why or why not.
83. A teacher brings 3 gallons of juice on a field trip. There are 36 students on the trip.
- How many fluid ounces of juice does the teacher bring? Show your work.
 - Does the teacher have enough juice to give each student a 12-fluid ounce glass of juice? Explain.
84. Andre drove 378 miles in 7 hours.
- Find the unit rate in miles per hour. Show your work.
 - Find the unit rate in miles per minute. Show your work.
 - Find the unit rate in miles per second. Show your work.
 - Use one of your unit-rate answers from parts (a)–(c) to find Andre’s rate in feet per minute. Explain your choice and show your work.
85. Cinema A sells a twelve-pack of movie passes for \$66. Cinema B sells a five-pack of movie passes for \$28.
- Find the cost per ticket for each cinema. Which offer is cheaper?
 - How much do you save per ticket if you choose the cheaper offer?
 - Give a reason why buying the ticket book with the lower cost per ticket may not always be the best idea. Explain.
86. If 70% of the students at a school sign up for Exercise Day, a sporting goods store will give the school 10% off on all purchases. There are 378 students in the school.
- What is the least number of students who must sign up for the school to make its goal? Show your work.
 - The school plans to buy basketballs. They want to have one basketball for every 12 students. How many basketballs will they buy? Show your work.
 - Each basketball regularly costs \$35. Suppose the school reaches its goal and gets the discount. What will be the total savings when the school purchases the basketballs? Show your work.

- 87.
- Find the mean of the data set.
6, 8, 18, 12, 10, 2, 5, 19
 - Describe the number or numbers that, when substituted for x , result(s) in the same mean.
6, 8, 18, 12, 10, 2, 5, 19, x
 - Describe the number or numbers that, when substituted for y , result(s) in a mean greater than the mean for the first eight numbers. Explain why the mean is greater.
14, 8, 18, 12, 10, 2, 5, 19, y
88. Use the information from this table to answer the questions.

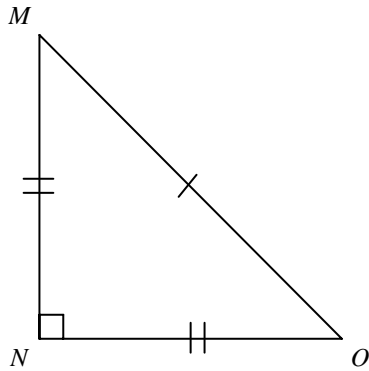
RAITT Corporation Sales

Year	Sales (\$ millions)
1998	45
1999	5
2000	15
2001	30
2002	50

- Which would be the best way to display the data—a bar graph, a histogram, or a line graph? Justify your answer.
 - Graph the data.
89. Listed below is the percent of sixth grade students who chose each kind of juice at lunch time. Use this information to make a circle graph.

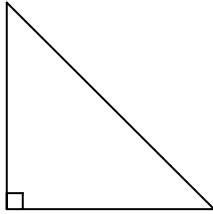
Grape Juice	8
Orange Juice	6
Fruit Punch	6
Apple Juice	20

90. You are sitting on a rock facing due north. A treasure is buried about 10 meters from the rock at 135° east of north. Explain how you can estimate 135° from due north.
91. Luis painted a red stripe on his wall from one floor corner to another. Then he painted another red stripe up the same wall from the floor corner to the ceiling corner. Finally, he painted a diagonal from the ceiling corner to the floor corner to form a triangle. When he measured the distance from the floor to the ceiling, he found the height to be the same length as the length of the room.



- a. Classify this triangle by its sides and angles.
- b. Justify your answer in part (a).
- c. $MN = 8$ feet. Find ON .

92.



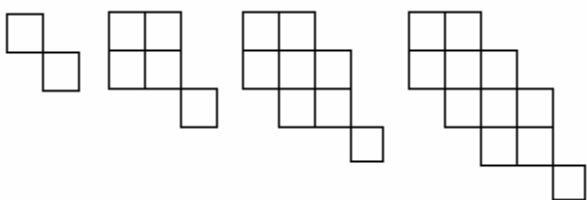
- a. Measure the sides of the triangle above.
 - b. Measure the angles of the triangle above.
 - c. Classify the triangle by its angles and its sides.
93. Does the associative property apply to subtraction? In other words, does $a - (b - c) = (a - b) - c$? Use integers to help you explain.
94. The coordinates of two vertices of a square are $(1, 2)$ and $(1, 0)$.
- a. How can you find the length of each side of the square?
 - b. Explain why the other two vertices cannot be in Quadrant III or Quadrant IV.
 - c. Find the possible coordinates of the other vertices. (*Hint*: There is more than one answer.)
95. The temperatures -40°F and -40°C are the only temperatures at which the Fahrenheit and Celsius scales agree. The freezing point of water is 32°F , which is 0°C .
- a. Explain how you can make and use a graph to approximate a room temperature of 68°F in degrees Celsius.
 - b. Approximate 68°F in degrees Celsius.
96. An airline determined that one sixth of all passengers holding confirmed reservations don't show up for their flight. To avoid partly filled flights, the airline has started over-booking flights, that is, selling more tickets than there are actual seats on the plane.
- a. Suppose an airplane can hold 105 passengers. How many reservations should the airline book to make sure they have a full flight? Explain.
 - b. Knowing that $\frac{1}{6}$ of the people on this airline do not show up, describe how a number cube could be used to model whether a passenger holding a confirmed reservation shows

up for the flight or not.

97. A French professor knows that about 1 out of every 9 students will not show up for his college class. The room has 16 chairs and the French teacher has admitted 19 students to the class.
- Describe a way to simulate the number of chairs that will be needed during the class period.
 - Are the results of the experiment completely reliable? Explain.
98. The probability of randomly selecting a red marble from a bag, replacing it, and selecting a red marble again is $\frac{1}{25}$.
- What is the probability of selecting a red marble on the first try? Explain.
 - Suppose you know there are originally 2 red marbles in the bag. How many marbles are there in all? Show your work.
- 99.
- Solve $a - 9 = 20$.
 - Solve $b - 9 > 20$.
 - How is solving an equation like solving an inequality?
 - How are they different?
100. Person A holds a kite on a 250-foot string. Person B stands directly under the kite. The distance between the two people is 70 feet.
- Write an equation that can be used to determine the height of the kite.
 - Explain how to solve the equation.
 - How high is the kite?

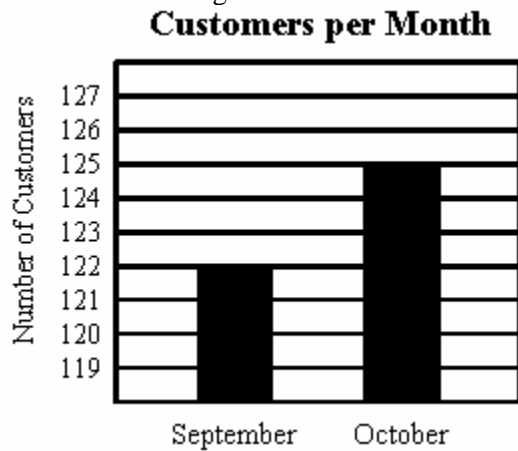
Other

101. Tell whether the equation $x - 4 + 8 = x - 12$ is true or false. Explain.
102. Sketch the next two designs in the pattern below.



103. You ask a deli attendant for a package of sliced ham that weighs $\frac{3}{8}$ pound or a little more. When weighed on a digital scale, the package weight is 0.358 pound. Did you get what you requested? Explain.
104. Is $\frac{38}{53}$ in simplest form? Explain why or why not. If not, write it in simplest form.
105.
 - Without using a common denominator, order $\frac{5}{11}$, $\frac{5}{8}$, and $\frac{5}{6}$.
 - Write a rule for ordering fractions with the same numerator.

106. Jackie buys $\frac{1}{4}$ lb of turkey and $\frac{3}{4}$ lb of potato salad. Draw a model that shows the weight of Jackie's total purchase. Explain why you chose to draw the model you did.
107. Eliza and Jamie are making cupcakes for a bake sale at school. Eliza need $2\frac{1}{3}$ c of flour for her recipe and Jamie needs $1\frac{3}{4}$ c for her recipe. They have 4 c of flour. Do they have enough flour for both recipes? Explain.
108. What is the next number in the pattern $6\frac{1}{5}$, $10\frac{19}{20}$, $15\frac{7}{10}$? Explain how you found your answer.
109. Draw a model to find the product $\frac{1}{4} \times \frac{1}{2}$.
110. David is thinking of a number from one to ten. After each guess you make, he tells you whether his number is higher or lower than your guess, or whether you have guessed correctly. Explain how you would determine the lowest number of guesses you must make to be certain of getting David's number.
111. A truck weighs 4,600 pounds. Can it cross a bridge that does not hold more than $2\frac{1}{4}$ tons? Explain.
112. Six ounces of a nutrition shake provides 2 grams of protein. Will 24 ounces of the drink provide 10 grams of protein? Explain.
113. The following graph shows the number of customers who purchased something from a store in September and October. Explain how you could redraw the graph so that the change in customers between the two months does not seem so great.



114. **Kilowatt – hours of Electricity Used**

Month	KWh Used	Month	KWh Used
Jan	2,640	Jul	960
Feb	2,190	Aug	1,380
Mar	1,560	Sep	1,110
Apr	1,620	Oct	840
May	1,440	Nov	1,260
Jun	1,080	Dec	1,820

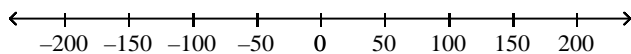
- a. Describe how to find the range of the data set.
- b. Find the range.

115. Explain why a right equilateral triangle does not exist.

116. Can a trapezoid also be a square? Justify your answer.

117. A rectangular prism has dimensions of 3 in. by 6 in. by 7 in. Another rectangular prism has dimensions of 2 in. by 7 in. by 9 in. Are the volumes of the two prisms the same? If not, which one has the greater volume? Explain.

118. Explain how to graph -175 on the number line below. Copy the number line and graph -175 .



119. The products below show that sometimes the product of negative integers is positive and sometimes the product is negative.

$$(-1) \times (-1) = 1$$

$$(-1) \times (-1) \times (-1) = -1$$

$$(-1) \times (-1) \times (-1) \times (-1) = 1$$

How can you predict the sign of the product without multiplying? Explain.

120. Is 3.4 part of the solution to $a + 4 > 0$? Explain.