

## Accelerated Math I Summer Review Packet

### *DUE THE FIRST DAY OF SCHOOL*

The problems in this packet are designed to help you review topics from previous mathematics courses that are essential to your success in Accelerated Math II. **You are expected to bring this completed packet to class on the first day of school.** In addition, this packet will count as part of your first quarter grade. **Upon returning, you will be ASSESSED on the content of this packet.** All contents outlined in the packet are Integrated Math I objectives. Neatly **SHOW YOUR WORK** on a separate sheet of paper.

- Determine a ratio that forms a proportion with  $\frac{2}{5}$
- Find the unit rate of 18 mi in 12 h
- Solve  $\frac{10}{35} = \frac{c}{7}$
- What ratio is *not* equivalent to 8 : 12?
  - 2 : 3
  - 16 : 24
  - 10 : 14
  - 4 : 6
- You use 2 bags of peat moss and 5 bags of topsoil to fill your garden bed. What is the ratio of topsoil to peat moss?
- You bought 4 boxes of facial tissues for \$3.79. Which is a better buy than the one you made?
  - 6 for \$5.75
  - 2 for \$1.96
  - 3 for \$2.79
  - 1 for \$.97
- What is the value of  $t$  in the proportion  $\frac{25}{10} = \frac{t}{4}$ ?
- You decide to use a scale of 1 in. : 6 ft to make a scale drawing of your dining room. If the actual length of the dining room is 15 feet, what should the length of the dining room in your scale drawing be?
- A college student has set aside \$240 for the rest of the school year to use the coin-operated laundry facility in his dormitory. Each time he uses the machines, it costs \$7.50. Determine the equation that represents the amount remaining in his fund,  $f$ , after he has done laundry  $x$  times. Find the amount remaining in the fund after 12 trips to the laundry facility.

**Write the prime factorization of the number.**

- 170

**Consider lines whose equations have the form  $y = mx + 20$ . Find the difference of the  $x$ -intercepts of lines  $l_1$  and  $l_2$  if their slopes are  $m_1$  and  $m_2$ , respectively.**

- Which statement is always a correct conclusion about the values of  $x$  and  $y$  in the function  $y = x - 3$ ?
  - The value of  $x$  is always 3 less than the value of  $y$ .
  - The value of  $y$  is always less than the value of  $x$ .
  - When the value of  $x$  is positive, the value of  $y$  is also positive.
  - As the value of  $x$  increases, the value of  $y$  decreases.
- Which pair of lines could be perpendicular when graphed?
  - $y = 3, x = 5$
  - $x = 4, y = x$
  - $y = 2x, y = \frac{1}{2}x$
  - $y = 3, y = x$
- Determine a ratio that forms a proportion with  $\frac{10}{30}$
- Define a straight angle
- What is a prime number? Provide two examples.
- A cubic centimeter of helium at  $0^\circ\text{C}$  has a mass of about 18 hundred-thousandths of a gram. Write 18 hundred-thousandths using the scientific form

17. The high school students and parents of high school students in a school district were surveyed to find their attitudes about the district's grade requirements for participation in extracurricular activities. They were asked if they were satisfied with the current policy, wanted a stricter policy, or thought the current policy too restrictive. The district superintendent thought that parents would be more in favor of changing the policy to make it stricter than would be the students. The table below shows the results of the survey.

	Satisfied	Make It Stricter	Too Strict Now
Students	276	164	191
Parents	243	165	237

Which of the following is the best assessment of the results of the survey?

- a. The superintendent was wrong. The percent of parents who said they want a stricter policy is significantly smaller than the percent of students who said the same thing.
- b. The superintendent was wrong. The percent of parents who said they want a stricter policy is about the same as the percent of students who said the same thing.
- c. The superintendent was correct. The percent of parents who said they want a stricter policy is significantly larger than the percent of students who said the same thing.
- d. The superintendent was correct. A greater number of parents than students want a stricter policy.
18. The ordered pair  $(1, 6)$  is a solution of which equation?

- a.  $3y = 6x + 12$                       c.  $3y = 6x + \frac{3}{4}$
- b. none of these                      d.  $3y - 12x = 2$

19. Which table represents a linear relationship between the variables  $x$  and  $y$ ?

- a. 

$x$	1	2	3	4
$y$	-3	-6	3	-4

                      c. 

$x$	1	2	3	4
$y$	-1	-1	-1	1
- b. 

$x$	1	2	3	4
$y$	-5	-6	-7	-8

                      d. 

$x$	1	2	3	4
$y$	-3	0	5	-5

**Find the slope of the line with the given rise and run.**

20. Rise:  $-3$   
Run:  $-4$

21. Devin needs to pay \$356 to go on a school band trip. Each month he pays \$47 toward the trip. Describe a function based on this situation. Identify the input and the output. Write an equation that models the amount he owes after  $x$  months.
22. Only one of the box-and-whisker plots correctly displays data about the ages of team members on a company baseball team. The statements below are all true about the team. Use the statements below to draw a box-and-whisker plot
- The youngest member is 23 years old.
  - About 75% of the members are between 24 and 42 years old.
  - No one is older that 42 years old.
  - About 50% of the members are at least 33 years old.
23. The attendance at a local basketball tournament is given in the table below.

Game	1	2	3	4	5
Number of People	1066	1275	465	125	530

Suppose you wanted to make a bar graph of this data, with the vertical axis showing the number of people. What would be the best increment to use on the vertical scale?

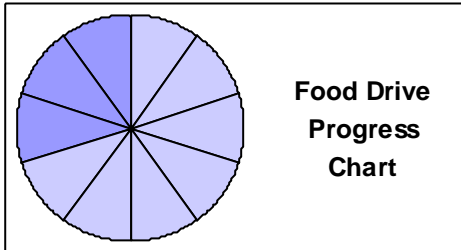
24. Graph  $y = \frac{2}{5}x + 3$ . Then, on the same plane plot the graph that result by changing the 3 in the equation to  $-1$ ?

- 25.

Number of Days of Rainfall		
Rainfall (cm)	Tally	Frequency
0.0-0.5		24
0.6-1.1		22
1.2-1.7		10
1.8+		5

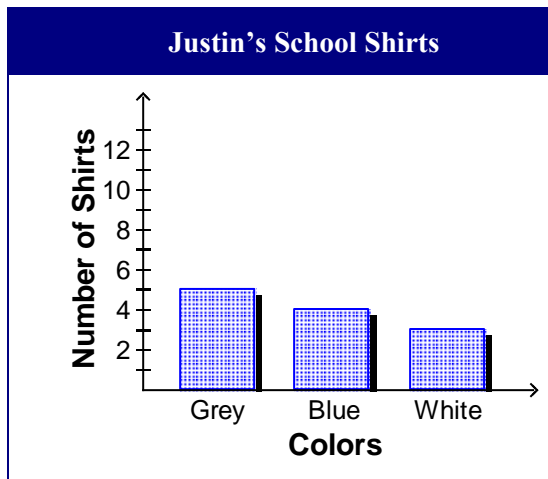
Using the data in the table above, draw a histogram

26. Paige is making a poster in art class to show how much canned food her school has collected for their food drive. Paige divides a circle into 10 equal sections and paints 3 sections dark blue. This shows that they have already collected  $\frac{3}{10}$  of their goal.

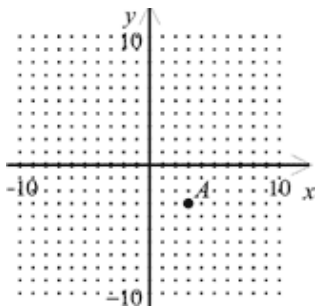


What percent is equivalent to the fraction of canned goods the students have collected?

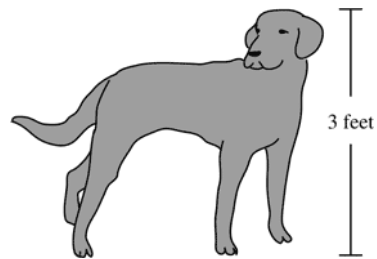
27. Justin's school requires uniforms. The students can choose from 5 different shirt colors. Justin owns 5 grey, 4 blue, and 3 white. What is the probability that he will wear grey on Monday?



28. What are the coordinates of point A?

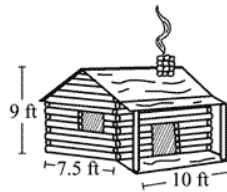


29. What is the domain of the relation  $\{(0, 4), (4, 9), (5, 2), (10, 4)\}$
30. State the  $x$ - and  $y$ -intercepts of the line with the equation  $y = -2x + 4$ .
31. Find the slope of the line passing through the points  $A(-1, 1)$  and  $B(4, -5)$ .
32. What is the ratio of eleven days to a week written as a fraction?
33. Jamie drew a scale drawing of her dog Bowser. Suppose the dog is two inches tall in the drawing.



In Jamie's drawing, one inch is equal to how many feet?

34. Jorge is building a scale model of the small log cabin shown below. The model will be 1.8 feet high.



What is the scale of the model written as a fraction?

**Find the average speed.**

35. 212 miles in 4 hours

**Identify the coefficients, constant term(s), and like terms of the expression.**

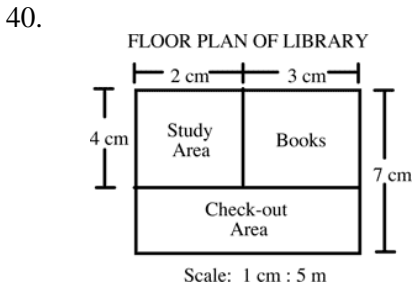
36.  $3x + 2 - 5x - 7$

**Write the verbal sentence as an equation. Let  $y$  represent the number.**

37. The sum of  $\frac{1}{4}$  of a number and 120 is 315.

38. It costs \$1.75 to go on a ride at Funland Amusement Park. When Jason went to the park on Tuesday, he spent \$7 on food and the rest on the rides. How many rides did he go on if he spent \$28 at the park?

39. Sam is 14 years old, which is 4 more than 2 times Minnie's age. Write an equation that could be used to solve for Minnie's age. How old is Minnie?



What are the actual dimensions of the study area?

**Use a percent proportion.**

41. 217 is what percent of 620?

**Find the amount of simple interest earned.**

42. Principal: \$300  
Annual rate: 5.5%  
Time: 5 years

43. Principal: \$680  
Annual rate: 4%  
Time: 42 months

**For an account that earns simple annual interest, find the interest and the balance of the account.**

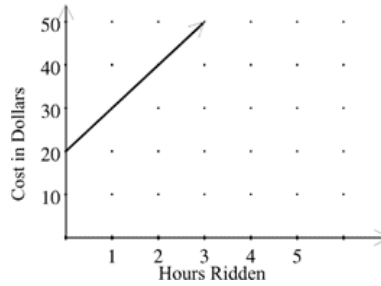
44. \$450 at 8% for 1 year

**Solve the equation.**

45.  $36 = 4y$

46. Of every 5 hot dogs Martha sold, 3 had sauerkraut. What percent of the hot dogs sold had sauerkraut?

47. The graph for a stable that charges a \$20 flat fee plus \$10 per hour for horseback riding is shown below. How will the graph change if the stable changes its charges to a flat fee of \$45 plus \$30 per hour?



**Events A and B are dependent events. Find the unknown probability.**

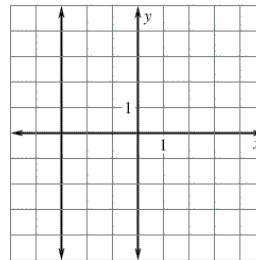
48.  $P(A) = 0.7$   
 $P(B \text{ given } A) = 0.3$   
 $P(A \text{ and } B) = \underline{\quad?}$

**Find the product or quotient. Write your answer in scientific notation.**

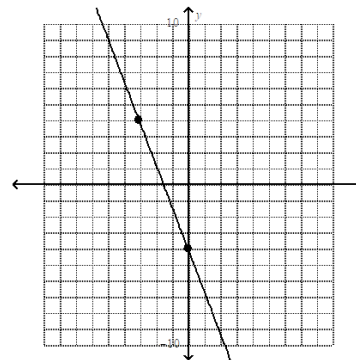
49.  $(3.2 \times 10^{-5}) \times (1.2 \times 10^{-6})$

50. What are the mean, median, and mode(s) of the data?  
2, 17, 26, 27, 14, 4, 12, 26, 26, 6

51. Determine the slope of the line graphed below.



52. Write an equation in slope-intercept form of the graph.



**Simplify the expression.**

53.  $2p + 4(m - 6 + 2m) - 12m + 3p$

**Solve the equation. Check your solution.**

54.  $-8y + 5 + 2y = -37$

55.  $\frac{3}{4}p - 2 = \frac{3}{8}$

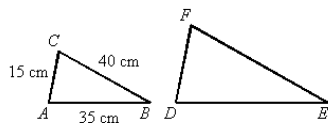
**Use the cross products property to solve the proportion.**

56.  $\frac{6.3}{9} = \frac{t}{15.8}$

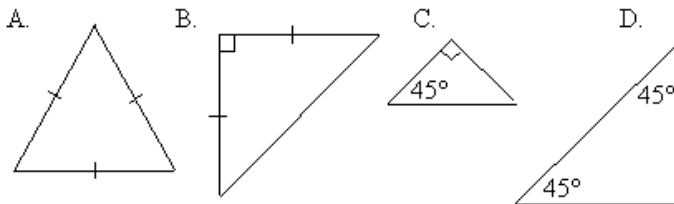
**Write the verbal phrase or sentence as a variable expression or equation. Let  $n$  represent the number.**

57. 6 times the sum of a number and 5

58. Triangle  $ABC$  is similar to triangle  $DEF$ . The perimeter of  $\triangle DEF$  is 108 centimeters. What is the length of  $\overline{FD}$ ?



59. Which triangle is not similar to any of the others?



60. A survey indicated that 3 out of 4 doctors used brand X aspirin. If 2400 doctors were surveyed, how many used brand X?

**Write an equation to represent the situation described. Then, solve the equation.**

61. Miguel has read 43 fewer pages than Ramon. Miguel has read 566 pages. How many pages has Ramon read?

62. Lena wants to buy a computer that costs \$900 dollars. She already has \$473 dollars saved. Her grandmother will pay her \$7 an hour to help her with the yard work. How many hours will Lena need to work before she can afford to buy the computer?

63. The drama club is selling story books to raise money. The supplier charges a one-time fee of \$40 for each order and \$5 for each story book. Write and solve an equation for the number of story books the drama club can purchase if their budget is \$1240.

**Write a proportion and solve.**

64. The cost of 50 shares of Fly-by-Night Airlines is \$72.50. How many shares can you buy for \$725.00?

65. Carla wants to make a scale model drawing of a tree that is 16 feet tall. The tree in her drawing will be 24 inches tall. If the trunk of the tree has a diameter of 12 inches, how wide should she make the trunk in the drawing?

66. Your class is trying to raise \$250 to pay for a field trip. So far you have raised 70% of the money needed. How much money has your class raised?

67. Four months ago you deposited \$150 in a new savings account, and now your balance is \$152.25. Ten months ago your friend deposited \$150 in a new savings account and her balance is now \$155.75. Which account has the greater simple annual interest rate?

68. An amount of money is deposited into an account that earns 6% simple annual interest. After 6 months, the account balance is \$1,442. How much was originally deposited into the account?

69. When Jing May was born, her grandparents invested \$1000 in a fixed rate savings account at a rate of 7% compounded annually. The money will go to Jing May when she turns 18 to help with her college expenses. What amount of money will Jing May receive from the investment?

**Evaluate the power.**

70.  $15^5$

**Find the range of the data.**

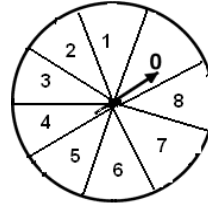
71. ages of the players on a softball team: 29, 26, 25, 32, 27, 25, 32, 26, 24, 25
72. At 12:20 P.M., a parachutist is 6200 feet above the ground. At 12:27 P.M., the parachutist is 1100 feet above the ground. Find the average rate of change in feet per minute.
73. Write the equation  $4x - y - 2 = 0$  in slope-intercept form, and sketch the line.
74. The volume,  $V$ , of a tank varies directly with its height,  $h$ . A tank 12 feet high holds 300 cubic feet. Write an equation relating  $V$  and  $h$ .

75. You are making a phone call from a public phone booth. The call will cost you 35¢ for the first minute and 15¢ for each additional minute or fraction of a minute. Write a verbal model with labels showing the total cost of the phone call.
76. A grocer knows that if he sells his canned hams for \$8 each, he can sell 950 per month, and if he sells the same hams for \$10, he will sell 900 per month. Assuming the relationship between price and sales is linear, write an equation you could use to predict sales for other prices.

**Make an input-output table for the function using the domain  $-2, -1, 0, 1,$  and  $2$ . Then state the range of the function.**

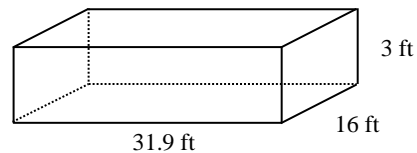
77.  $y = 10x$
78. A piece of fabric measures 39 inches by 42 inches. A triangular scarf with a height of 21 inches and a base of 22 inches is cut from the fabric. How much is left over?
79. Mr. Youn is building a tree house. The floor of the tree house is in the shape of a trapezoid. How many square feet of lumber will Mr. Youn need for the floor if the dimensions are  $b_1 = 19$  feet,  $b_2 = 15$  feet, and  $h = 17$  feet?

80. What is the probability of drawing a card with the number 3 on it and the spinner landing on the number 1?  
The card numbers are 0, 1, 2, 3, 4, 5, 6, 7.



**Find the surface area. Round to the nearest tenth.**

- 81.



82. The math club at Glendale Middle School is selling banner flags picturing the school's mascot. The club paid \$220 for two cases each containing 100 flags. The math club sells each flag for \$3.  
(a) Use the function rule  $P = 3f - 220$ , where  $P$  is the profit in dollars and  $f$  is the number of flags sold to determine how many flags must be sold to make a profit.  
(b) If the math club sells all of the flags purchased, how much money will they earn?

**Make a table of values for the equation when  $x = -1, x = 0,$  and  $x = 1$ . Then graph the equation in a coordinate plane.**

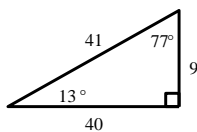
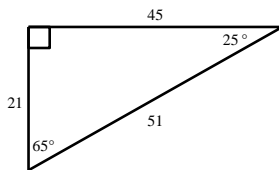
83.  $y = -2x + 1$
84. Sketch the graphs of  $x = -5$  and  $y = 3$ . Find the point at which the two graphs intersect.
85. **True or False:** The slope of a line is the ratio of *run* to *rise* for any two points on a line.
86. **True or False:** The slope of a line is the ratio of *rise* to *run* for any two points on a line.

87. Rewrite the equation  $\frac{1}{3}x - 2y + \frac{2}{3} = 0$  in slope-intercept form.
88. The distance traveled (in meters) by the Oregon slug can be modeled by the function  $f(t) = 0.9t$ , where  $t$  is the time in minutes. Find the distance traveled in 27.5 minutes.
89. Make a table of values for the function  $f(x) = 2x + 3$  using  $x$ -values of 1, 2, 3, 4, and 5. Then graph the function.

$x$	1	2	3	4	5
$f(x)$					

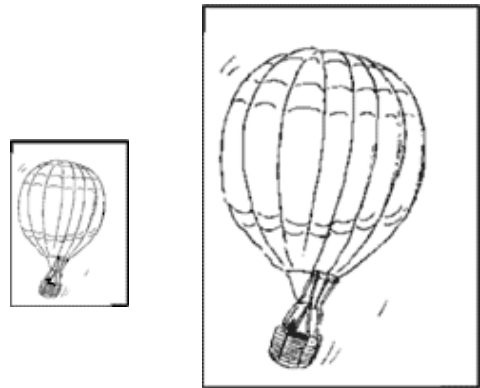
Find the value of  $x$  so that  $f(x) = 13$ .

90.  $f(x) = x - 10$
91. Are the two triangles (not drawn to scale) similar? If so, explain why they are.



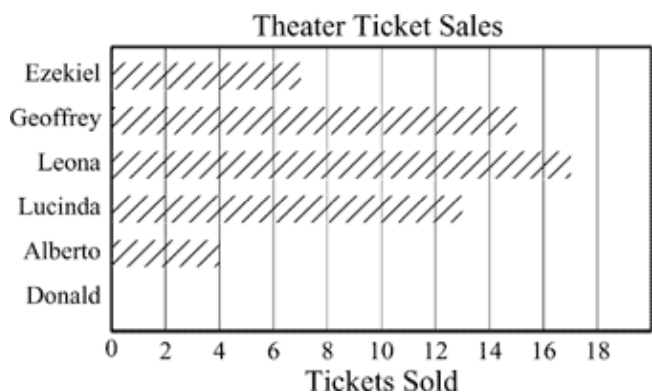
92. During the flu season, 12.5% or 38 students in a school were absent more than two days.
- Write and solve a percent equation to determine the total number of students in the school.
  - Compare using a percent equation to using a proportion to solve the problem.

93. You have \$500 to invest. One bank offers a 3 year certificate of deposit that pays 5% simple annual interest, and another bank offers a 4 year certificate of deposit that pays 4.5% simple annual interest. Which certificate of deposit would you choose? Explain why.
94. Shown below is a picture and its enlargement. The width and length of the smaller picture are 9 and 12 inches respectively. The length of the larger picture is 28 inches.



- Write two proportions which can be used to find the width of the larger picture. Explain why both proportions can be used.
  - What is the width of the larger picture? Show or explain how you know that your answer is correct.
95. Jake says that the  $x$ -intercept of the equation  $3x + 4y = 12$  is 3, and the  $y$ -intercept is 4. Explain why Jake is wrong. What are the actual intercepts and how did you find them?
96. To prepare for a school fundraiser, Juanita pays \$5.00 for 100 cups. She also buys cans of fruit juice for \$.50 each. Use this information to answer the following questions.
- Write an equation that describes Juanita's total cost as a function of the number of cans of fruit juice she buys. Let  $C$  = the total cost and  $n$  = the number of cans of fruit juice purchased.
  - Describe the domain of the function.
  - Describe the range of the function.
  - Juanita has \$35 to spend on cups and fruit juice for the fundraiser. If she buys 100 cups, how many cans of fruit juice can she buy?

97. A line passes through the point  $(-7, 1)$  and has slope 6.
- Explain how to write an equation in point-slope form for the line.
  - Mary says that another equation for the line that passes through  $(-7, 1)$  with slope 6 is  $y + 5 = 6(x + 8)$ . Decide whether she is correct. Explain your thinking.
98. During the flu season, 12.5% or 38 students in a school were absent more than two days.
- Write and solve a percent equation to determine the total number of students in the school.
  - Compare using a percent equation to using a proportion to solve the problem.
99. A study of basset hounds recorded the weights of 15 adult dogs in pounds, as shown below.  
48, 56, 42, 55, 53, 61, 52, 43, 56, 53, 54, 48, 44, 57, 60.
- Draw a box-and-whisker plot for the weights. Then use your box-and-whisker plot to estimate the answer to the following two questions.  
What percent of the dogs weigh more than 53 pounds? Approximately what percent weigh more than 56 pounds? Explain.
100. The bar graph shows how many theater tickets were sold by students at Da Vinci School for the Arts. Donald's ticket sales have not been added to the graph.



**Part A** If the mean number of tickets sold by the six students is 10, how many tickets did Donald sell? Show your work.

**Part B** How do Donald's ticket sales compare to the median of the ticket sales?

**Part C** How many more tickets would the students have to sell to raise the mean to 15? Explain your answer.