

1. The Quill and Scroll is a stationery shop. Its stock and sales for May are listed in the table shown. What percent of its sales were not pens or pencils?

Item	% of May Sales
Pens	38
Pencils	35
Other	?

1. \_\_\_\_\_

2. What is the greatest common divisor of all sets of numbers where each member of the set is the sum of three consecutive positive integers?

2. \_\_\_\_\_

3. What is the measure, in degrees, of the supplement of an angle measuring 50 degrees?

3. \_\_\_\_\_

4. When flipping a fair coin, what is the probability that the first two flips are both heads? Express your answer as a common fraction.

4. \_\_\_\_\_

5. What is the result when  $-8$  is multiplied by 3 and then that product is divided by  $-4$ ?

5. \_\_\_\_\_

6. The 22 members of Troop 71 and their leader, Dave, are planning an overnight camping trip. Dave is planning to make hamburgers, and his recipe calls for 1 pound of beef per 4 burgers. Assuming each person eats one burger, how many pounds of beef should he purchase to serve the troop, himself and the 3 chaperones? Express your answer as a decimal to the nearest tenth.

6. \_\_\_\_\_

7. What is the measure, in degrees, of the acute angle formed by the minute hand and hour hand on a standard clock when it indicates 9:40?

7. \_\_\_\_\_

8. What is the area, in square units, of a triangle with vertices at  $(0, 0)$ ,  $(0, 5)$  and  $(7, 12)$ ? Express your answer as a decimal to the nearest tenth.

8. \_\_\_\_\_

9. Each person marked the table with an X on the day(s) he/she would not be able to attend a meeting. On which day can the most people attend a meeting?

	Mon	Tues	Wed	Thurs	Fri
Anna	X		X		
Bill		X		X	X
Carl	X	X		X	X

9. \_\_\_\_\_

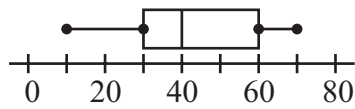
10. If  $3^{33} + 3^{33} + 3^{33} = 3^x$ , what is the value of  $x$ ?

10. \_\_\_\_\_

11. A square is inscribed in a circle of radius four meters. What is the area of the square, in square meters?

11. \_\_\_\_\_

12. Students in the 2nd grade at West ES were asked how many minutes they spent doing homework last night. The data is displayed in this box-and-whisker plot. What is the range of the data, in minutes?

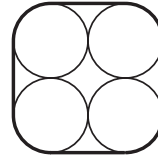


12. \_\_\_\_\_

13. What is the remainder when the product of the 5 smallest prime numbers is divided by 42?

13. \_\_\_\_\_

14. Four congruent circular discs each with a 1-meter diameter are held tightly together by a thin band, as shown. How long is the band, in meters? Express your answer to the nearest whole number.



14. \_\_\_\_\_

15. What is the product of the solutions of the equation  $-35 = -x^2 - 2x$ ?

15. \_\_\_\_\_

16. The diameter of a circle is increased so that the circumference increases by 70%. By what percent does the area increase?

16. \_\_\_\_\_

17. What is the remainder when 2007 is divided by 81?

17. \_\_\_\_\_

18. A computer screen will fit 9 icons in each column and can fit 12 columns of icons. How many total icons can fit on the screen?

18. \_\_\_\_\_

19. What is the smallest possible perimeter, in units, of a triangle whose side-length measures are consecutive integer values?

19. \_\_\_\_\_

20. What is the greatest number of Sundays that can occur in the first 49 days of a year?

20. \_\_\_\_\_

21. What is 50% of 200% of 10?

21. \_\_\_\_\_

22. In an election, 1,200 total votes were cast for the 3 candidates. The second-place candidate received 125 fewer votes than the winner and 200 votes more than the third-place candidate. How many votes did the winner receive?

22. \_\_\_\_\_

23. The table shows the number of days per week households eat their dinner together. What percent of households eat their dinner together at least once a week?

7 days	40%
5-6 days	30%
1-4 days	20%
0 days	10%

23. \_\_\_\_\_

24. The length of the median to the hypotenuse of an isosceles, right triangle is 10 units. What is the length of a leg of the triangle, in units? Express your answer in simplest radical form.

24. \_\_\_\_\_

25. If 60 miles per hour is 88 feet per second, how many feet per second is 66 miles per hour? Express your answer as a decimal to the nearest tenth.

25. \_\_\_\_\_

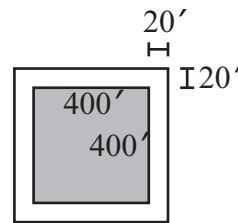
26. February 1, 2008, is a Friday. The last Friday of February 2008 will be February  $x$ , 2008. If 2008 is a leap year, what is the value of  $x$ ?

26. \_\_\_\_\_

27. What is the radius, in inches, of a right circular cylinder if its lateral surface area is 3.5 square inches and its volume is 3.5 cubic inches?

27. \_\_\_\_\_

28. In Perfectville, the streets are all 20 feet wide and the blocks they enclose are all squares of side length 400 feet, as shown. Sarah runs around the block on the 400-foot side of the street, while Sam runs on the opposite side of the street. How many more feet than Sarah does Sam run for every lap around the block?



28. \_\_\_\_\_

29. What is the value of 123,123 divided by 1001?

29. \_\_\_\_\_

30. A rectangular array of chairs is an arrangement of the chairs in rows and columns such that each row contains the same number of chairs as every other row and each column contains the same number of chairs as every other column. If there must be at least two chairs in every row and column and all of the chairs in the room must be included, how many arrays are possible in a classroom containing 36 chairs? Note that 12 rows of 3 chairs is different from 3 rows of 12 chairs.

30. \_\_\_\_\_

31. A circle is circumscribed about an equilateral triangle with side lengths of 9 units each. What is the area of the circle, in square units? Express your answer in terms of  $\pi$ .

31. \_\_\_\_\_

32. Ellen baked 2 dozen cupcakes of which half contained chocolate, two-thirds contained raisins, one-fourth contained chocolate chips and one-sixth contained nuts. What is the largest possible number of cupcakes that had none of these ingredients?

32. \_\_\_\_\_

33. How many integers are in the solution set of  $|x - 2| \leq 5.6$ ?

33. \_\_\_\_\_

34. A right triangle has two sides of length 6 units each. What is the area of the triangle, in square units?

34. \_\_\_\_\_

35. If 5 lunks can be traded for 3 kunks, and 2 kunks will buy 4 apples, how many lunks are needed to purchase one dozen apples? 35. \_\_\_\_\_
36. What is the value of  $x$  for which  $(8 - x)^2 = x^2$ ? 36. \_\_\_\_\_
37. An arc of 55 degrees on circle A has the same length as an arc of 40 degrees on circle B. What is the ratio of the area of circle A to the area of circle B? Express your answer as a common fraction. 37. \_\_\_\_\_
38. Sally has 624 quarters in her piggy bank. In dollars, how much money is this? 38. \_\_\_\_\_
39. Approximately 70% of the earth's surface is covered with water. Twenty-five percent of the remaining surface is green space. What percent of the earth's surface is not covered with water and is not green space? Express your answer to the nearest tenth. 39. \_\_\_\_\_
40. What is the value of  $x$  in the equation  $(17^6 - 17^5) \div 16 = 17^x$ ? 40. \_\_\_\_\_
41. A 4-foot by 8-foot rectangular piece of plywood will be cut into 4 congruent rectangles with no wood left over and no wood lost due to the cuts. What is the positive difference, in feet, between the greatest possible perimeter of a single-cut piece and the least possible perimeter of a single-cut piece? 41. \_\_\_\_\_
42. The graph of the line  $x + y = b$  is a perpendicular bisector of the line segment from  $(1, 3)$  to  $(5, 7)$ . What is the value of  $b$ ? 42. \_\_\_\_\_
43. How many integers between 100 and 150 have three different digits in increasing order? One such integer is 147. 43. \_\_\_\_\_
44. One hundred people were surveyed. Of these, 87 indicated they liked Mozart and 70 indicated they liked Bach. What is the minimum number of people surveyed who could have said they liked both Mozart and Bach? 44. \_\_\_\_\_
45. What is the total surface area, in square inches, of a cube with a volume of 1 cubic foot? 45. \_\_\_\_\_
46. What is the probability that flipping a fair coin three times produces fewer than two heads? Express your answer as a common fraction. 46. \_\_\_\_\_
47. If Jimmy increases a number by 10%, and then decreases this new value by 10%, what percent of the original number will the final result be? 47. \_\_\_\_\_

48. The positive three-digit integer  $N$  has a ones digit of 0. What is the probability that  $N$  is divisible by 4? Express your answer as a common fraction. 48. \_\_\_\_\_
49. What is the value of  $x$  if a cube's volume is  $5x$  cubic units and its surface area is  $x$  square units? 49. \_\_\_\_\_
50. Given that  $8! = 40,320$ , what is the value of  $8! \div 3!$ ? 50. \_\_\_\_\_
51. If the seven-digit integer 1,32A,BCD is a palindrome, what is the greatest possible value of  $A \times B \times C \times D$ ? 51. \_\_\_\_\_
52. The altitude of an equilateral triangle is  $\sqrt{6}$  units. What is the area of the triangle, in square units? Express your answer in simplest radical form. 52. \_\_\_\_\_
53. Ben starts with the number 33. If he squares this value, then adds 11 and finally divides by 11, what is the result? 53. \_\_\_\_\_
54. Points A, B, C and D lie on a line, in that order. If  $AB = 2$  units,  $BC = 5$  units and  $AD = 14$  units, what is the ratio of AC to BD? Express your answer as a common fraction. 54. \_\_\_\_\_
55. What is the smallest possible value of  $x$  if  $12 \div (x + 1)$  is an integer? 55. \_\_\_\_\_
56. A right rectangular prism has a base area one-quarter the base area of a larger right rectangular prism. The height of the smaller prism is half the height of the larger one. What is the ratio of the volume of the smaller prism to the volume of the larger prism? Express your answer as a common fraction. 56. \_\_\_\_\_
57. The number 101 is the smallest three-digit palindromic prime. What is the second-smallest one? 57. \_\_\_\_\_
58. In triangle ABC, the measure of angle A is  $x$  degrees, the measure of angle B is  $2x$  degrees and the measure of angle C is  $5x$  degrees. What is the value of  $x$ ? Express your answer as a decimal to the nearest tenth. 58. \_\_\_\_\_
59. What is the sum of the even, positive integers less than 62? 59. \_\_\_\_\_
60. A right triangle is inscribed in a circle with a diameter 100 units long. What is the maximum area of the triangle, in square units? 60. \_\_\_\_\_