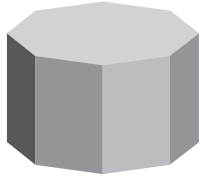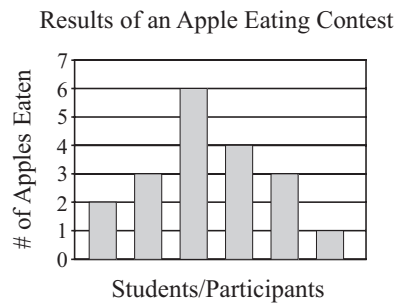1. How many integers between 15 and 85 are divisible by 20?

1. _____ (integers)

2. How many edges does an octagonal prism have?

2. _____ (edges)

3. Mickey's age is 4 years less than 300% of Jerry's age. If Mickey is 14 years old, how old is Jerry?

3. _____ (years)

4. A particular multivitamin contains 120 mcg of chromium which represents 125% of the recommended daily amount. What is the recommended daily amount of chromium, in mcg ?

4. _____ (mcg)

5. What is the sum of the 10 smallest positive multiples of three?

5. _____

6. How many of the letters in MATHCOUNTS have a horizontal line of symmetry?

6. _____ (letters)

7. Billy takes two marbles, without replacement, from a bag that contains only six yellow marbles and three blue marbles. What is the probability that he gets one marble of each color? Express your answer as a common fraction.

7. _____

8. What is the volume, in cubic units, of a cube whose surface area is 600 square units?

8. _____ (cu units)

9. The only garments that a particular factory produces are dresses and shirts. It produces three dresses for every five shirts it makes. If the factory produced a total of 72 garments today, how many dresses did it make?

9. _____ (dresses)

10. What is the number that yields the same value when it is multiplied by three and then increased by five as when it is multiplied by five then decreased by three?

10. _____

11. If the pattern 3, 6, 9, 3, 6, 9, 3, 6, 9, … is continued indefinitely, what is the product of the 31st and 113th terms?

11. _____

12. Minh paid $3 for four doughnuts. At that rate, how much would he pay, in dollars, for four dozen doughnuts?

12. _____ (dollars)

13. The perimeter of a rectangular garden is 60 feet. If the length of the field is twice the width, what is the area of the field, in square feet?

13. _____ (sq feet)

14. In a jumbo bag of bows $\frac{1}{5}$ are red, $\frac{1}{2}$ are blue, $\frac{1}{10}$ are green and the remaining 30 are white. How many of the bows are green?

14. _____ (bows)

15. What is the degree measure of an angle whose measure is double the measure of its complement?

15. _____ (degrees)

16. Six students participate in an apple eating contest. The graph shows the number of apples eaten by each participating student. Aaron ate the most apples and Zeb ate the fewest. How many more apples than Zeb did Aaron eat?

Results of an Apple Eating Contest

16. _____ (apples)

17. James is six years older than Louise. Eight years from now, James will be four times as old as Louise was four years ago. What is the sum of their current ages?

17. _____ (years)

18. The area of one face of a right pyramid with an equilateral triangular base is 75 square meters. If the slant height is 30 meters, what is the length of the side of its base, in meters?
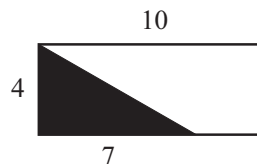
18. _____ (meters)

19. How many positive integers less than 100 are both a square and a cube?

19. _____ (integers)

20. A line parallel to $3x - 7y = 65$ passes through the point (7, 4) and (0, K). What is the value of K?

20. _____

21. If there is one birth in Mathagoni every six seconds, how many births are there in Mathagoni in a 2-hour period?

21. _____ (births)

22. If the odds for pulling a prize out of the box are 3:4, what is the probability of not pulling a prize out of the box? Express your answer as a common fraction.

22. _____

23. What percent of the area of the rectangle shown is black?

23. _____ (percent)

24. How many elements are in the intersection of the set of all the prime numbers less than 30 and the set of all the odd numbers greater than zero?

24. _____ (elements)

25. Billy's age is twice Joe's age and the sum of their ages is 45. How old is Billy?

25. _____ (years)

26. A 60 foot by 20 foot garden is enclosed by a fence. To increase the area of the garden, while still using the same fence, its shape is changed to a square. By how many square feet does this enlarge the garden?

26. _____ (sq feet)

27. Fifty numerical data points have a mean of 20. If each data point is doubled and combined with the original data points to form 100 data points, what is the numerical average of the combined data?

27. _____

28. What is the probability that the same number will be facing up on each of three standard six-sided dice that are tossed simultaneously? Express your answer as a common fraction.
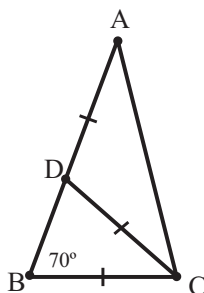
28. _____

29. In basketball, a player can score via 3-point shots, 2-point shots and 1-point free throws. If Dirk made eight 2-point shots while scoring 33 points, what is the minimum number of free throws he could have made?

29. _____ (free throws)

30. If the square root of the length of the hypotenuse of a right triangle is 2 units, what is the sum of the squares of the lengths of the two other sides?

30. _____ (sq units)

31. How many ordered pairs (x, y) of positive integers satisfy the inequality $4x + 5y < 20$?
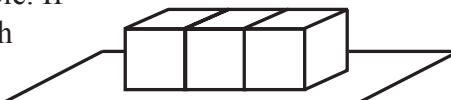
31. _____ (ordered pairs)

32. What is 25% of $\frac{4}{5}$ of 0.625? Express your answer as a common fraction.

32. _____

33. Triangles BDC and ACD are both coplanar and isosceles. If $m\angle ABC = 70°$, what is $m\angle BAC$, in degrees?

33. _____ (degrees)

34. When randomly selecting an integer from 40 to 50 inclusive, what is the probability of selecting a prime integer? Express your answer as a common fraction.

34. _____

35. If standard six-sided dice are placed side-by-side touching in a single row on a table, only some of the faces will show. With three dice in a row, 11 faces are visible. If there were 2010 dice arranged in such a row on a tabletop, how many faces could be seen?

35. _____ (faces)

36. What is the greatest possible product of any two distinct prime numbers less than 40?

36. _____

37. A right, rectangular prism has three faces with areas of 6, 8 and 12 square inches. What is the volume of the prism, in cubic inches?

37. _____ (cu inches)

38. The ratio of the measures of the acute angles of a right triangle is 8:1. In degrees, what is the measure of the largest angle of the triangle?

38. _____ (degrees)

39. What is the area, in square units, of a triangle that has sides of 4, 3, and 3 units? Express your answer in simplest radical form.

39. _____ (sq units)

40. How many fractions in the form $\frac{n}{99}$, with $0 < n < 99$, are in lowest terms?

40. _____ (fractions)

41. What is the value of $(1 + \frac{1}{2})(1 + \frac{1}{3})(1 + \frac{1}{4})(1 + \frac{1}{5})$?

41. _____

42. The mean of 5, 8 and 17 is equal to the mean of 12 and y. What is the value of y?

42. _____

43. A lily pad doubles in size each day. If it takes 28 days for the lily pad to cover the entire pond, how many days will it take to cover one-fourth of the pond?

43. _____ (days)

44. What is the smallest digit that is never found in the units place of an even number?

44. _____

45. How many positive four-digit integer palindromes have 12 as the sum of the digits of the number?

45. _____ (palindromes)

46. What is the result when $\frac{\frac{4}{x}}{\frac{2}{y}}$ is divided by $\frac{y}{x}$?

46. _____

47. Each interior angle of a polygon measures 170 degrees. How many sides does the polygon have?

47. _____ (sides)

48. The square of 15 is 225. The square of what other number is also 225?

48. _____

49. A machine makes 78 bolts in 15 seconds. At this rate, how many bolts will the machine make in 16 minutes?

49. _____ (bolts)

50. What is the sum of all of the positive integer solutions of $24 - 2x > 17$?

50. _____

51. Sheets of tissue paper 0.004 mm thick are stacked by a machine at a rate of 50,000 sheets per minute. How many minutes are required to obtain a stack one meter tall?

51. _____ (minutes)

52. No two students in Mrs. Vale's 26-student mathematics class have the same two initials. Each student's first name and last name begin with the same letter. If the letter "y" is considered a vowel, what is the probability of randomly picking a student whose initials are vowels? Express your answer as a common fraction.

52. _____

53. Jasmine drank 1.5 pints of water on the first 3 miles of her hike. If she continued at this rate, how many pints of water would she drink in the next 10 miles?

53. _____ (pints)

54. The relationship between the Celsius and Fahrenheit temperature systems is $C = \frac{5}{9}(F - 32)$. What temperature, in degrees Celsius, is equal to the same numeric temperature in Fahrenheit?
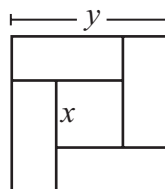
54. _____ (degrees Celsius)

55. What is the units digit of the product of all the odd positive integers between 10 and 110?

55. _____

56. The sum of two numbers is 15. Four times the smaller number is 60 less than twice the larger number. What is the larger number?

56. _____

57. The figure shows a square of side y units divided into a square of side x units and four congruent rectangles. What is the perimeter, in units, of one of the four congruent rectangles? Express your answer in terms of y.

57. _____ (units)

58. When the square root of x is cubed, the answer is 64. What is the value of x?

58. _____

59. Ten more than five times a number equals five more than ten times the number. What is the number?

59. _____

60. The bottoms of two vertical poles are 12 feet apart and are on a region of flat ground. One pole is 6 feet tall and the other is 15 feet tall. How long, in feet, is a wire stretched from the top of one pole to the top of the other pole?

60. _____ (feet)