MATHCOUNTS

■ Speed and Accuracy Practice Test 10■

Name _____

Date _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.
The test consists of two parts, with each part 40 problems. You will have 15 minutes to complete the part 1 and 25 minutes to complete the part 2. You are not allowed to use calculators, books, or any other aids during this round. Calculations may be done on scratch paper. All answers must be complete, legible, and simplified to lowest terms. Record only final answers. Do each problem as quick as you can. If you finish one problem, go to the next. Do not spend any time to check your answers.

Total Correct		Scorer's Initials
Part I		
Part II		

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Part I Problems 1–40

1. $48 + 173 + 269 =$

2. $59.8 \times 11 =$

3. $64.8 - 33.8 =$

4. $17^2 =$

5. $127 \times 50 =$

6. $101 \times 68 =$

7. Find the remainder for$5372 \div 9$.

8. $25_6 + 42_6 =$

9. $32 \div 8 + 11 \times 6 =$

10. $\sqrt{324} =$

11. Express 3 miles in feet.

12. $19 \times 37 - 37 \times 15 =$

13. If $\frac{1}{2}x + 8 = 35$, then $x = ?$

14. 23 feet = ——— yards. Express your answer as a mixed number.

15. The area of a triangle with base 22 and height 2.5 is ———. Express your answer as a common fraction.

16. The mean of 73, 77, 78 and 76 is ———

17. $125 \times 16 =$

18. $111 \times 151 =$

19. $98 \times 96 =$

20. $4\frac{1}{3} \times 27 =$

21. Express $8\frac{3}{4} \times 8\frac{1}{4}$ as a mixed number.

22. One sq. mile = ——— acres

23. $37^2 \div 5$ has a remainder of ———

24. Find an interior angle of a regular undecagon (hendecagon) in degree.

25. Express $\frac{5}{8} + \frac{8}{5}$ as a mixed number

26. If $x^2 = 15$ and $x > 0$, then $x =$

27. Find the area of a square with diagonal 5. Express your answer as a mixed number.

28. Express 35_7 in base 10.

29. Find the area of a circle with radius 10.

30. Find the number of diagonals that can be drawn from one vertex of a octagon.

31. Find the sum of the three angles of a scalene obtuse triangle in degree.

32. Simplify $\sqrt{48}$.

33. Find b if $43_b = 31_{10}$.

34. Find the volume of a cube with edge 7.

35. What is the slope of the line passing (4,8) and $(-2,4)$?

36. What is the speed of 60 mi/hr in ft/sec?

37. What number is halfway between 7 and -13?

38. Find the value of $7! \div 5!$.

39. What is the measure of an exterior angle of a regular pentagon in degree?

40. Express as a common fraction in simplest form: $0.\overline{11} + 0.\overline{22}$.

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Part II Problems 41–80

41. Sami began a math contest at 10:37 a.m. and finished at 1:19 p.m. the same day. How many minutes did she take to complete the contest?

42. If $3x + 8 = 23$, what is the value of $3x + 3$?

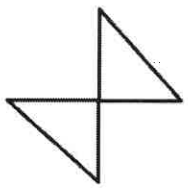
43. Three out of every five students at Gauss Middle School went to the Spring Fling. If 100 students did not go to the Spring Fling, how many students attend this school?

44. Each edge length of a cube is doubled. How many times the volume of the new cube is the volume of the original cube?

45. What is the sum of the first four prime numbers greater than 100?

46. If x is an integer such that $12 > x > 3$, what is the greatest value of $11x + 11$?

47. Two congruent isosceles right triangles are joined to create this figure. Each leg of each triangle measures 5 units. What is the total area of the figure, in square units?



48. If the sum of the digits of a positive two-digit integer is 17, what is the probability that none of the digits is 9?

49. A right triangle has a hypotenuse of 26 units. If one leg is 10, what is the sum of the lengths of the legs, in units?

50. The length of a right, rectangular prism is tripled, its width is quadrupled and its height is doubled. What is the ratio of the original volume to the new volume? Express your answer as a common fraction.

51. If $n + (1/n) = 5$, what is the value of $n^2 - 5n$?

52. The endpoints of segment BC are $B(-5, 4)$ and $C(5, 6)$. What is the product of the coordinates of the midpoint of segment BC?

53. Given $a + b = 16$, $b + c = 19$ and $a + c = 13$, what is the sum of a, b and c?

54. What is the sum of the distinct prime divisors of $17 + 17^2$?

55. If $3^n = 27^3$, what is the integer value of n?

56. If a 12-hour analog clock reads 10:00, what is the degree measure of the larger angle formed by the minute and hour hands?

57. The probability that Alex will draw a yellow marble at random from a bag containing yellow marbles and blue marbles is 3/5. If 21 of the marbles are yellow, how many marbles are blue?

58. What is the area, in square units, of an equilateral triangle whose side is $2\sqrt[4]{3}$?

59. What is the value of the digit K that will make the number $5K6$ divisible by 9?

60. James can paint a wall in 10 minutes, and Evan can paint the same size wall in 20 minutes. If they work together, how many minutes will it take them to paint fifteen walls of this size?

61. Joe and Mike live 30 miles from each other at opposite ends of Highway 11. They drive toward each other on Highway 11 at the same time. Joe travels at an average speed of 40 mph and Mike travels at an average speed of 60 mph. How many minutes will it take for them to meet?

62. The *GCF* of two numbers is 7. Their product is 1,001. What is the *LCM* of the two numbers?

63. Eight distinct points are arranged on a circle. How many different triangles are there whose three vertices are among those eight points?

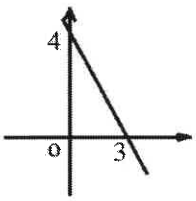
64. A store advertised a computer at 50% off plus an additional 50% off the sale price. Erich paid $75 before taxes, what was the original price of the computer?

65. Meili bought a box of dog biscuits for her golden retriever Kara. She gives Kara 7 dog biscuits a day. After seventeen days she counted 91 biscuits left in the box. What is the number of dog biscuits in the box originally?

66. How many different games need to be played so that 5 teams each play each other exactly twice?

67. Find the total surface area of a 3 by 3 by 3 cube.

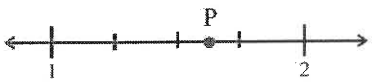
68. The graph of the line $\frac{x}{a}+\frac{y}{b}=1$ is shown. What is the value of $b-a$?



69. If $4x + y = 17$ and $x + 4y = 8$, what is the value of $5x + 5y$?

70. What is the arithmetic mean of the first five prime numbers? Express your answer as a mixed number.

71. The number line shown has uniformly-spaced markings. If point P is equidistant from its two closest markings, what is the coordinate of P? Express your answer as a common fraction.



72. What is the smallest positive integer that can be added to the sum of the consecutive integers $(1 + 2 + \ldots + 10 + 11)$ so that the resulting total is divisible by 7?

73. When 50 is increased by 50% it then is equal to what number decreased by 25%?

74. Two fair, standard six-sided dice are rolled. What is the probability that the sum of two numbers is a prime number greater than 5? Express your answer as a common fraction.

75. Given a right triangle whose side lengths are all integer multiples of 11, how many units are in the smallest possible perimeter of such a triangle?

76. The average age of six students in a room is 15 years. A 10-year- old student leaves the room. What is the average age of the five remaining students, in years?

77. If the ratio of $5x$ to $2y$ is $5/6$, what is the ratio of $2x$ to $5y$? Express your answer as a common fraction.

78. How many integers x, such that $1 \leq x \leq 1000$, are multiples of 13?

79. What is the greatest common factor of 221 and 247?

80. What is the product of $\sqrt[3]{49}$ and $\sqrt[6]{49}$?