Number Sense

Directions: This is a 20 minute test. There are 81 problems. Solve accurately and as quickly as possible. You will be allowed a pen and only a pen. No scratch work is allowed and no scratch paper or calculators are allowed. ALL PROBLEMS ARE TO BE SOLVED MENTALLY. You may write only in the space provided and write only the answer of the question. All questions except the last 4 require exact answers. 1 point will be given for each correct answer. Questions are to be answered in order. The penalty for skipping questions will be as follows: for each consecutive pair of questions skipped, both questions as well as all questions between the 2 will be marked incorrect. Good luck and have fun.

1.	22.	43.	64.
2.	23.	44.	65.
3.	24.	45.	66.
4.	25.	46.	67.
5.	26.	47.	68.
6.	27.	48.	69.
7.	28.	49.	70.
8.	29.	50.	71.
9.	30.	51.	72.
10.	31.	52.	73.
11.	32.	53.	74.
12.	33.	54.	75.
13.	34.	55.	76.
14.	35.	56.	77.
15.	36.	57.	78.
16.	37.	58.	79.
17.	38.	59.	80.
18.	39.	60.	81.
19.	40.	61.	
20.	41.	62.	
21.	42.	63.	

1. 10+3+2013
2. 10+3*2013
3. 11*2013
4. 2013-1024
5. $\frac{1107}{9}$
6. 3+(4*5-6)/7
7. $\frac{7}{16}$ = (decimal)
8. 2013+2014+3275
9. $\frac{\frac{15}{28}}{\frac{5}{21}}$
10. 4 * (4 $\frac{4}{5}$) =[answer as a mixed number]
11. 11^3 =
12. 24^2 =
13. $17 * 54 - 49 * 17$
14. The GCD of 35 and 77
15. Which of the following is a prime number: 79 or 87
16. 56% = [fraction]
17. Which is larger, $\frac{-4}{23}$ or $\frac{-3}{17}$?
18. If 15x = 57, what is 25x?
19. $26_7 + 34_7 = x_7$
20. (t,a,m,s)U(t,o,u,r,n,e,y) has x elements. What is 6x-5?
21. Floor of $\sqrt{2013}$
22. If $\sqrt{2 + \sqrt{44 + \sqrt{x}}} = 3$, find x.
23. 7^3
24. MCDL/L = (Arabic Numeral)
25. The largest integer x such that $7x + 9 < 50$ is?
26. $5^{-1} + 5^{-2} =$
27. If $11^x = 209$, what is 11^{x-1}?

28. $49^2 =$

29. $\frac{845}{0.25}$

30. $\frac{20^2 * 12^2}{16}$

31. The radius of the circle $12x^2 + 12y^2 - 192 = 0$ is how much?

32. $66_7 + 6_7 = x_7$

33. $64^{\frac{5}{3}}$

34. The bigger root of $4x^2 - 7x + 3 = 0$

35. The coefficient of x in the expansion of $(3x - 2)^3$

36. If $f(x) = 2x + 5$ and $g(x) = 3x^2 + 7x + 8$, then $f(g(-1)) =$

37. If $\frac{5}{7} = \frac{x}{13}$, what is x? (mixed fraction)

38. 169*171

39. If a pen costs 17 cents then 23 pens costs how much?

40. 54 plus 12.5% of 72 is how much?

41. $16^2 * 5^2$

42. A boy is handed 40 slices of pie, 2 socks, a rubber band and a tennis ball. In the amount of time it takes the boy to eat 8 slices of pie, his sister can finish 1 page of homework. For every page of homework that his sister finishes, his mom cleans 3 rooms. For every room his mom cleans, his dad reads 2 newspapers. When the boy finishes all his pie, assuming that all the participants began at the same time, how many newspapers have been read?

43. In 2013, November 9 lies on a Saturday. What day of the week does November 9, 2016 lie on?

44. 303^2

45. $111 * 11 + 1111 * 11$

46. What is the sum of the angle measures of a hexagon?

47. $5 + 10 + 15 + ... + 45$

48. 2^{10}

49. 3^5

50. How many diagonals does a hexagon have?

51. The slope of the line $25x - 15y + 8 = 0$ is

52. $2^3 * 5^3 * 11^3 =$

53. $49^2 + 49 =$

54. $26 * (26/27)$–$26 =$

55. The area of an isosceles right triangle with leg length $3 * \sqrt{26}$ is

56. Sin(1845)

57. (3*4!-4*3!)/3!

58. The sum of the coefficients of $(x - y)^5$ is?

59. If sec(x)=2.375 and csc(x)=1.125, then what is tan(x) as a fraction?

60. $(3 - 4i)^2 = (a + bi)$. Compute a+b

61. 8*5! + 5*3!

62. $1+\frac{1}{3}+\frac{1}{9}+\frac{1}{27}+\frac{1}{81}+\ldots$

63. 111*27

64. $\frac{1}{12} + \frac{1}{15} + \frac{1}{20}$

65. Sin(150)+cos(120)

66. 37^2

67. The set (μ, α, θ) has how many non-empty subsets?

68. The legs of a right triangle have length 3 and 4. The length of the altitude to the hypotenuse is what?

69. If A is $\frac{1}{3}$ of B and B is 40% of C, what fractional part of C is A?

70. If $log_{27}(x) - log_{27}(8)$=1, what is x?

71. $7^2 - 6^2 + 5^2 - 4^2 + 3^2 - 2^2 + 1^2 =$

72. How many ways can you pick 2 execs out of 16 to proctor a number sense test?

73. Floor of 3-2π

74. $\sqrt{2704}$

There is no penalty for answering the following 7 questions out of order.

75. 176 $feet/second = x\ miles/hour$. What is x?

76. The set (t,e,a,m,f,r,a,t) has how many distinct 2-element subsets (the t's and a's are not distinct but there are 2 of them)?

77. How many digits are in the result of 2394712893749*129834719328479

    The following 4 problems will be scored as correct for any answer within 5% of the exact answer. Integral answers required.

78. $395 * 948$

79. $\sqrt{(945039)}$

80. $843 * 12.8/(13/6)$

81. $65\pi - 37e$