CONTESTANT ID #: _____

GRADE LEVEL :_____

Place Contestant ID label here AFTER grading

PSIA

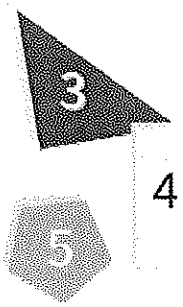
25 YEARS

Inspiring Student Achievement

Number Sense

District Contest

Grades 6-8



2022

Grader #1 Score: _____

Grader #2 Score: _____

Grader #3 Score: _____

FINAL SCORE: _____

(Please do not open test until the signal is given to begin.)

1. $478 + 356 =$ _____
2. $602 - 188 =$ _____
3. $32 \times 30 =$ _____
4. $18 + 20 + 22 =$ _____
5. $6 \times 5 \div 3 =$ _____
6. $11 \times 57 =$ _____
7. $8.33 + 17.5 =$ _____ (decimal)
8. $\frac{3}{4} \times 24 =$ _____
9. LXI = _____ (Arabic numerals)

* 10. $7834 + 8173 + 2143 =$ _____

11. $31 - 2 \times 6 =$ _____
12. Which is smaller: $\frac{5}{8}$ or $\frac{4}{7}$? _____
13. $75 \times 12 =$ _____
14. The sum of all odd numbers between 30 and 40 is _____
15. $6.2 \times 0.6 =$ _____ (decimal)
16. The average of 12, 18, 14, and 16 is _____
17. $19^2 =$ _____
18. $\frac{7}{8} - \frac{1}{5} =$ _____ (fraction)
19. $5635 \div 7 =$ _____

* 20. $598 \times 394 =$ _____

21. $(-8) \times (-7) \times (-5) =$ _____
22. If $N = 6$, then $4N - 17 =$ _____
23. $8\frac{1}{3} - 6\frac{2}{3} =$ _____ (mixed number)
24. $\sqrt{441} =$ _____
25. 5 yards = _____ inches
26. How many positive integral divisors does 50 have? _____
27. $43 \times 37 =$ _____
28. If 3 oranges cost \$1.08, then 9 oranges cost \$ _____
29. The multiplicative inverse of $\frac{5}{7}$ is _____ (decimal)

* 30. $53947 \div 111 =$ _____

31. $1 - 2 + 3 - 4 + 5 - 6 =$ _____
32. If $8x - 7 = 17$, then $x =$ _____
33. $101 \times 45 =$ _____
34. $\sqrt[3]{-8} =$ _____
35. 25 is to 40 as 35 is to _____
36. $503^2 =$ _____
37. If $\frac{1}{x} + \frac{1}{5} = \frac{7}{10}$, then $x =$ _____
38. The LCM of 22 and 34 is _____
39. $8\frac{1}{2}$ centimeters = _____ millimeters

* 40. $\sqrt{822649} =$ _____

41. 51 (base 10) = _____ (base 8)
42. $106 \times 109 =$ _____

43. What is the smallest number greater than five thousand that is evenly divisible by 9? _____

44. The area of a triangle whose base is 8 and height is 9 is _____

45. $5\frac{2}{3} \times 5\frac{1}{3} =$ _____ (mixed number)

46. In the sequence 1, 3, 6, 10, 15, 21, p, q, . . ., what is the value of $q - p$? _____

47. 72% of 25 is _____

48. Each interior angle of a regular polygon with 18 sides measures _____ degrees

49. If $3 - 5x < 2x$, then $x >$ _____

* 50. $15^2 \times 18^2 =$ _____

51. How many total subsets does {d, o, m, a, i, n} have? _____

52. $3\frac{1}{7} + 5\frac{2}{7} + 7\frac{3}{7} =$ _____ (mixed number)

53. $8.3 \times 2.3 =$ _____ (decimal)

54. The hypotenuse of a right triangle is 15. Its legs are 9 and _____

55. $\frac{7}{11} - \frac{29}{43} =$ _____

56. A boat was rowed at 5 ft/s. How far did the boat travel in 4 minutes? _____ yards

57. $98 \times 106 =$ _____

58. $\frac{1}{6} + \frac{1}{12} + \frac{1}{24} =$ _____

59. If $y \div 3 = 85$, then $y^2 \div 9 =$ _____

* 60. $72\pi^3 =$ _____

61. $\frac{5}{8} + \frac{8}{13} =$ _____ (mixed number)

62. $(17 \times 32 + 19) \div 8$ has a remainder of _____

63. 5 square feet = _____ square inches

64. $\frac{17}{40} =$ _____ (decimal)

65. $999 \times 875 =$ _____

66. If $(9x - 3)(4x + 5) = ax^2 + bx + c$, then $b =$ _____

67. $28 \times 51 =$ _____

68. A swim meet has 10 swimmers. How many ways can 3 of them finish in 1st, 2nd, and 3rd places? _____

69. The probability of winning is $\frac{5}{12}$. The odds of winning are _____

* 70. $16\frac{2}{3} \times 359 =$ _____

71. How many positive integers less than 26 are relatively prime to 26? _____

72. Find the radius of the circle whose equation is $(x - 2)^2 + (y + 3)^2 = 64$. _____

73. $37^2 + 111^2 =$ _____

74. $1 + 3 + 5 + 7 + \ldots + 93 =$ _____

75. $(0.727272\ldots) \times 88 =$ _____

76. 42 (base 5) × 4 (base 5) = _____ (base 5)

77. $12 \times \frac{12}{13} =$ _____ (mixed number)

78. $5^6 \div 7$ has a remainder of _____

79. $\frac{4}{15} + \frac{4}{35} + \frac{4}{63} =$ _____

* 80. $16 \times 26 \times 36 \div 46 =$ _____

For each estimation problem, the exact value (rounded to two decimal places) appears in square brackets.

(1) 834

(2) 414

(3) 960

(4) 60

(5) 10

(6) 627

(7) 25.83

(8) 18

(9) 61

***(10)** 17243 – 19057 [18150]

(11) 19

(12) $\frac{4}{7}$

(13) 900

(14) 175

(15) 3.72

(16) 15

(17) 361

(18) $\frac{27}{40}$

(19) 805

***(20)** 223832 – 247392 [235612]

(21) –280

(22) 7

(23) $1\frac{2}{3}$

(24) 21

(25) 180

(26) 6

(27) 1591

(28) 3.24

(29) 1.4

***(30)** 462 – 510 [486.01]

(31) –3

(32) 3

(33) 4545

(34) –2

(35) 56

(36) 253009

(37) 2

(38) 374

(39) 85

***(40)** 862 – 952 [907]

(41) 63

(42) 11554

(43) 5004

(44) 36

(45) $30\frac{2}{9}$

(46) 8

(47) 18

(48) 160

(49) $\frac{3}{7}$

***(50)** 69255 – 76545 [72900]

(51) 64

(52) $15\frac{6}{7}$

(53) 19.09

(54) 12

(55) $-\frac{18}{473}$

(56) 400

(57) 10388

(58) $\frac{7}{24}$

(59) 7225

***(60)** 2121 – 2344 [2232.45]

(61) $1\frac{25}{104}$

(62) 3

(63) 720

(64) .425

(65) 874125

(66) 33

(67) 1428

(68) 720

(69) $\frac{5}{7}$

***(70)** 5685 – 6282 [5983.33]

(71) 12

(72) 8

(73) 13690

(74) 2209

(75) 64

(76) 323

(77) $11\frac{1}{13}$

(78) 1

(79) $\frac{4}{9}$

***(80)** 310 – 341 [325.57]