Dr Numsen—High School Number Sense Level: **Medium**

Practice Test—20 October 2005 www.academicmeet.com

1. $7441 + 1447 =$ _____.
2. $204 \times 14 =$ _____.
3. $57 - 84 - 69 =$ _____.
4. $2^2 - 2^3 =$ _____.
5. Find the remainder when 17356 is divided by 9.

   _____.
6. Find the LCM of 33 and 96. _____.
7. Which is smaller: $-\frac{9}{10}$ or $-\frac{10}{11}$? _____.
8. $31^2 =$ _____.
9. $\frac{4 \times 5 \times 6}{2 \times 3 \times 4} =$ _____.

(*) 10. $95 + 276 + 712 + 792 =$ _____.

11. 132 yards = _____ feet.
12. $363 \times 11 =$ _____.
13. .725 = _____ (fraction).
14. $37 \times 12 =$ _____.
15. $2\frac{3}{4} \times 2\frac{1}{3} =$ _____ (mixed number).
16. How many positive integral divisors does 24 have?

    _____.
17. $18 \times 25 - 12 \times 75 =$ _____.
18. $11 \times \frac{11}{15} =$ _____ (mixed number).
19. How many primes are there between 70 and 80?

    _____.

(*) 20. $715 \times 38 =$ _____.

21. The average of 55, 96, 13, and 28 is _____.
22. $77 \times 429 =$ _____.
23. A circle has diameter 12. If the area is $k\pi$, find k.

    _____.
24. $\frac{17}{(2^3)(5)} =$ _____ (decimal).
25. $65 \times 75 =$ _____.
26. $6^2 + 42^2 =$ _____.
27. $79 + 80 + 82 + 85 + 89 =$ _____.
28. $\frac{5}{6}\% =$ _____ (fraction).
29. $1.2 \times 1.2 \times 1.2 =$ _____.

(*) 30. $21 \times 39 \times 53 =$ _____.

31. $31 \times 39 =$ _____.
32. $1234 \times 111 =$ _____.
33. GCD(36, 30) − LCM(36,30) = _____.
34. If $\frac{3x}{4} + 5 = 7$, then $\frac{3x}{8} =$ _____.
35. 34% of 75 is 51% of _____.
36. 11 ft^2 = _____ in^2.
37. Find the product of the roots of $8x^3 - 3x - 3 = 0$.

    _____.
38. If 1 gram = .04 ounces, then 56 ounces =

    _____ grams.
39. A regular octagon has exterior angles that measure

    _____ degrees.

(*) 40. $125241 \div 821 =$ _____.

41. Find the slope of the line whose equation is $6x + 2y = 1$. _____.
42. $321_5 =$ _____ $_4$.

43. $14.5^2 - 6.5^2 =$ _____.

44. $5375 \div 125 =$ _____.

45. $\sqrt[4]{162} \div \sqrt[4]{32} =$ _____ (decimal).

46. $.684444\ldots =$ _____ (fraction).

47. The midpoint of a segment whose endpoints are $(1, -1)$ and (x, y) is $(-6, 0)$. $x =$ _____.

48. The hypotenuse of a right triangle is 145. If one leg is 17, find the other leg. _____.

49. If $5x + 3 < 19$, then the largest integral value of x is _____.

(*) 50. $\sqrt{92939} =$ _____.

51. If $5x + 23 = 26$, then $5x - 11 =$ _____.

52. $\left|\dfrac{8+6i}{6i-8}\right| =$ _____.

53. If the odds of winning are $1 : 5$, then the probability of winning is _____.

54. $\log .001 =$ _____.

55. If the area of an equilateral triangle is $16\sqrt{3}$ square inches, then the perimeter of the triangle is _____ feet.

56. How many lines are determined by 4 points, no three of which are collinear? _____.

57. $17^2 - 19^2 + 21^2 - 23^2 =$ _____.

58. $\csc(30^\circ) =$ _____.

59. If $\log_7 x = 5$, then $x =$ _____.

(*) 60. $44 \times 36 \times 34 =$ _____.

61. $805^2 =$ _____.

62. If $f(x) = -8x - 7$, then $f^{-1}(x) = mx + b$.
$m =$ _____.

63. 60 miles per hour = _____ feet per second.

64. If $\cot x = \dfrac{9}{4}$, then $\tan x =$ _____.

65. $\sin(120^\circ)\cos(210^\circ) + \sin(210^\circ)\cos(120^\circ) =$ _____.

66. How many ways can 4 objects be placed in a circle?
_____.

67. The area of the ellipse whose equation is $\dfrac{x^2}{9} + \dfrac{y^2}{16} = 1$ is $k\pi$. Find k. _____.

68. $\dfrac{2\pi}{45}$ radians = _____°.

69. ${}_3C_3 + {}_3C_2 + {}_3C_1 + {}_3C_0 =$ _____.

(*) 70. $587465 \div 8.5 \div 56 =$ _____.

71. $18^2 + 11^2 - 7^2 =$ _____.

72. If $f(x) = -9x + 3$, then $f(f(-2)) =$ _____.

73. $\dfrac{4}{7} + \dfrac{7}{4} - 2 =$ _____.

74. Change $(8, 360^\circ)$ to rectangular coordinates (x, y).
$y =$ _____.

75. The product of the coefficients of $(3a + 6b)^2$ is
_____.

76. $(1^2 + 2^2 + 3^2 + \ldots + 6^2) \div 7$ has a remainder of
_____.

77. $\dfrac{\tan(31^\circ) + \tan(14^\circ)}{1 - \tan(31^\circ)\tan(14^\circ)} =$ _____.

78. $\lim\limits_{x \to -\infty} \dfrac{\sin x}{x} =$ _____.

79. $\displaystyle\int_3^7 \frac{1}{2x^2}\, dx =$ _____.

(*) 80. $142857 \div 21 =$ _____.