Number Sense Exam 001, 11/23/2016

1. \( \frac{3}{4} + \frac{2}{3} = \) __________________ (improper fraction)

2. \( 25 \times 215 = \) __________________

3. \( .075 = \) __________________ (fraction)

4. \( (24 + 18) \div 12 \times (3 - 6) = \) __________________

5. \( 7.5\% = \) __________________ proper fraction

6. \( 263 \div 5 = \) __________________ (decimal)

7. \( 28 \div 11 + 82 \div 11 = \) __________________

8. XLII = __________________ (Arabic Numeral)

9. \( \frac{2}{7} + \frac{1}{8} = \) __________________ (mixed number)

10. \( 13 + 159 + 347 + 891 - 10 = \) __________________

11. \( 13 + 18 + 23 + 28 + 33 + 38 = \) __________________

12. MMVIII − MIV = _________ (Arabic Numeral)

13. \( 12 \times 17 = \) __________________

14. \( 280 \) plus \( 30\% \) of \( 320 \) is __________________

15. \( 34^2 = \) __________________

16. Which is smaller, \( 1 \frac{1}{3} \) or \( 1.3 \)? __________________

17. \( 15 \times \frac{15}{17} = \) __________________ (mixed number)

18. \( 9 + 10 \times 11 - 12 = \) __________________

19. \( 23 + 28 + 33 + 38 + 43 + 48 = \) __________________

20. \( (60 \div 3 \div 2 \times 3)^2 = \) __________________

21. \( \frac{6}{13} \times 4 \frac{1}{3} = \) __________________

22. \( \{s, l, o, p, e\} \cap \{l, i, n, e\} \) has ___ distinct elements

23. Find the area of a square whose diagonal is 8 in. ___ sq. inches

24. 6 pints is what percent of a gallon? _________ %

25. Find the simple interest on \( \$500.00 \) at \( 5\% \) for five years. \( \$ \) __________________

26. Which of the following is a triangular number: 9, 15, or 18? __________________

27. \( 1421 \div 9 = \) __________________ (mixed number)

28. \( (4)^{-1} + (4)^{-2} = \) __________________

29. \( 7.777\ldots - 3.333\ldots = \) __________________

30. \( 8 \pi^3 \) __________________

31. If \( x + 3y = 5 \) and \( x - 2y = 4 \) then \( y = \) ________

32. If \( a = 5 \) and \( b = 3 \), then \( (a - b)(a^2 + ab + b^2) = \) ________

33. Find the simple interest on \( \$800 \) at \( 9\% \) for two years. \( \$ \) __________________

34. If \( x \) is to 3 as 5 is to 12 then \( x = \) __________

35. How many positive integers less than 30 are relatively prime to 30? ______________

36. \( 15 \frac{1}{5} \times 5 \frac{1}{5} = \) __________________

37. \( |6 - | -3 - 6|| = \) __________________

38. \( \frac{1}{4} \times 5 \frac{3}{4} = \) __________________ (mixed number)

39. \( 14443 \times 15 = \) __________________

40. \( \sqrt{20164} = \) __________________

41. \( 31 \times 4! + 36 \times 3! = \) __________________

42. The cube root of 250,047 is ______________

43. The area of the triangle whose base is 6 times its height \( h \) is \( kh^2 \) and \( k = \) __________

44. For what value of \( k \) does \( x^2 - 3x + k = 0 \) have equal roots? ______________
(45) $\frac{3}{14} = \underline{\hspace{2cm}}
(46) 13 \times 15 + 1 = \underline{\hspace{2cm}}
(47) 96 \times 97 = \underline{\hspace{2cm}}
(48) 45 \times 95 = \underline{\hspace{2cm}}
(49) The measure of an exterior angle of a regular \( n \)-gon is 18°. \( n = \underline{\hspace{2cm}} \) sides

*(50) 29 \times 16 \times 18 = \underline{\hspace{2cm}}
(51) 12 + 9 + 6.75 + \ldots = \underline{\hspace{2cm}}
(52) 102 \times 109 = \underline{\hspace{2cm}}
(53) The vertex of the parabola \( y = x^2 + 8x \) is \((h,k)\). Find \( h \). \underline{\hspace{2cm}}
(54) If \( y \) varies inversely with \( x \) and \( x = 4 \) when \( y = 3 \), find \( x \) when \( y = 8 \). \underline{\hspace{2cm}}
(55) The reciprocal of \( 3 - 4i \) is \( a + bi \) and \( a = \underline{\hspace{2cm}} \)
(56) How many ways can 5 people be seated 3 at a time in 3 chairs in a row? \underline{\hspace{2cm}}
(57) The sum of the roots of \( 2x^3 - 4x^2 + 5x + 6 = 0 \) is \underline{\hspace{2cm}}
(58) A triangle has integral sides of \( x, 22, \) and \( 2x \). The smallest value of \( x \) is \underline{\hspace{2cm}}
(59) .375 of a mile = \underline{\hspace{2cm}} feet
*(60) 16 \times 18 \times 20 = \underline{\hspace{2cm}}
(61) \sin \left( \frac{13\pi}{6} \right) = \underline{\hspace{2cm}}
(62) \sqrt{444889} = \underline{\hspace{2cm}}
(63) \tan \left( \frac{\pi}{3} \right) = \underline{\hspace{2cm}}
(64) How many lines are determined by 5 points no \( 3 \) of which are collinear? \underline{\hspace{2cm}}
(65) \( 1^2 - 2^2 + 3^2 - 4^2 + \ldots - 10^2 = \underline{\hspace{2cm}} \)
(66) If \( f(x) = 3x - \log_2 x \), find \( f(4) \) \underline{\hspace{2cm}}
(67) ln(\( e^2 \)) = \underline{\hspace{2cm}}
(68) The greatest integer function \( f(x) = [x] \) has a value of \underline{\hspace{2cm}} for \( f(\pi) \)
(69) If \( \log_4 8 = y \) then \( y^2 - 1.25 = \underline{\hspace{2cm}} \)
*(70) 13 \times 14 \times 15 \times 16 = \underline{\hspace{2cm}}
(71) \int_2^6 x \, dx = \underline{\hspace{2cm}}
(72) The rectangular coordinates of the polar coordinates \((3\sqrt{2}, \frac{\pi}{4})\) are \((x,y)\). \( x = \underline{\hspace{2cm}} \)
(73) Find \( x, 0 \leq x \leq 6 \), if \( 5x + 2 \equiv 8 \) (mod7). \underline{\hspace{2cm}}
(74) What is the 5th triangular number? \underline{\hspace{2cm}}
(75) \lim_{x \to 0} \frac{e^x - 1}{x} = \underline{\hspace{2cm}}
(76) The minimum value of \( f(x) = x^2 - 2 \) is \underline{\hspace{2cm}}
(77) If \( f(x) = 3x^2 - 2x + 1 \), then \( f'(-4) = \underline{\hspace{2cm}} \)
(78) \int_{-2}^{2} x^2 \, dx = \underline{\hspace{2cm}}
(79) If the initial point of a vector is \((3,7)\) and the terminal point is \((-1,4)\), then \( ||v|| = \underline{\hspace{2cm}} \)
*(80) 798 \div 44\frac{4}{9} \times .25 = \underline{\hspace{2cm}}