

## Number Sense Exam 024, 4/29/2017

- (1)  $1967 \times 2 =$  \_\_\_\_\_
- (2)  $2.4 \div 1.5 =$  \_\_\_\_\_
- (3)  $11 \times 67 =$  \_\_\_\_\_
- (4)  $30165 \div 15 =$  \_\_\_\_\_
- (5) CDXXIX = \_\_\_\_\_ (Arabic Numeral)
- (6)  $192837 \div 11$  has a remainder of \_\_\_\_\_
- (7)  $3 + (4 \times 5 - 6) \div 7 =$  \_\_\_\_\_
- (8)  $27 \times 25 =$  \_\_\_\_\_
- (9)  $18 \times 13 =$  \_\_\_\_\_
- \*(10)  $483 + 219 - 72 - 15 =$  \_\_\_\_\_
- (11)  $11^4 \div 11 =$  \_\_\_\_\_
- (12) DCIV  $\times$  IV = \_\_\_\_\_ (Arabic Numeral)
- (13) The GCD of 52 and 39 is \_\_\_\_\_
- (14)  $20\frac{1}{4} - 12\frac{1}{6} =$  \_\_\_\_\_ (mixed number)
- (15) The LCM of 12, 15, and 60 is \_\_\_\_\_
- (16)  $\frac{5}{6} + \frac{6}{5} =$  \_\_\_\_\_ (mixed number)
- (17) MIII + MIV = \_\_\_\_\_ (Arabic Numeral)
- (18)  $14 \times 203 =$  \_\_\_\_\_
- (19) DCCII  $\div$  IX = \_\_\_\_\_ (Arabic Numeral)
- \*(20)  $509 \times \sqrt{905} =$  \_\_\_\_\_
- (21)  $1.5 \times 2.5 \times 4.4 =$  \_\_\_\_\_ (decimal)
- (22)  $(22 + 45 \times 37) \div 6$  has a remainder of \_\_\_\_\_
- (23)  $33.67 \times 15 =$  \_\_\_\_\_ (decimal)
- (24)  $(32 \times 17 + 4 \times 24) \div 6$  has a remainder of \_\_\_\_\_
- (25) 135 base 8 is equivalent to \_\_\_\_\_ base 10
- (26)  $1 + 1 + 2 + 3 + 5 + \dots + 21 + 34 =$  \_\_\_\_\_
- (27)  $|2 - 3 - 4|5 - 6| + 7| =$  \_\_\_\_\_
- (28)  $(12 \times 23 + 11) \div 8$  has a remainder of \_\_\_\_\_
- (29) How many miles will a car travel in 1 hour and 20 minutes at a constant rate of 120 mph? \_\_\_\_\_
- \*(30)  $\sqrt{350} \times \sqrt{730} =$  \_\_\_\_\_
- (31)  $\sqrt{98 \times 8} =$  \_\_\_\_\_
- (32)  $102 \times 94 =$  \_\_\_\_\_
- (33)  $5\frac{1}{5} \times 25\frac{1}{5} =$  \_\_\_\_\_ (mixed number)
- (34) If  $f(x) = 9x^2 + 12x + 4$ , then  $f(-2) =$  \_\_\_\_\_
- (35)  $\sqrt[3]{512} \div \sqrt{64} =$  \_\_\_\_\_
- (36) If  $f(x) = x^2 - 6x + 9$ , then  $f(5.2) =$  \_\_\_\_\_
- (37) If  $a = 5$  and  $b = 3$ , then  $(a - b)(a^2 + ab + b^2) =$  \_\_\_\_\_
- (38) If  $f(x) = x^2 - 6x + 9$ , then  $f(18) =$  \_\_\_\_\_
- (39) If  $8x - 6 = 36$ , then  $2x - 1.5 =$  \_\_\_\_\_
- \*(40)  $39 \times 49 \times 29 =$  \_\_\_\_\_
- (41)  $104 \times 103 =$  \_\_\_\_\_
- (42) The sum of the interior angles of a regular hexagon is \_\_\_\_\_ degrees
- (43) If  $x - y = 3$  and  $x + y = 13$ , then  $x^2 - y^2 =$  \_\_\_\_\_
- (44)  $28 \times 38 =$  \_\_\_\_\_
- (45) The cube root of 250,047 is \_\_\_\_\_
- (46)  $\frac{7}{40} =$  \_\_\_\_\_ % (decimal)
- (47) If  $3^4 \times 3^k \div 3^5 = 3^2$  then  $k =$  \_\_\_\_\_
- (48)  $3 + 8 + 11 + 19 + 30 + 49 + 79 + 128 =$  \_\_\_\_\_

- (49) If  $4^{2x} = 25$ , then  $4^{3x} =$  \_\_\_\_\_
- \*(50)  $222 \times 27.1 \times \frac{7}{12} =$  \_\_\_\_\_
- (51) The sum of the coefficients of the expansion  $(4x - 2y)^3$  is \_\_\_\_\_
- (52) The integral sides of a triangle are 7, 9, and  $x$ . The greatest value of  $x$  is \_\_\_\_\_
- (53) The simplified coefficient of the 5th term in the expansion of  $(x - y)^5$  is \_\_\_\_\_
- (54)  $\sin\left(\frac{11\pi}{6}\right) =$  \_\_\_\_\_
- (55) The second term of the expansion of  $(x + 2y)^4$  has a coefficient of \_\_\_\_\_
- (56) If  $\log_4 k = -1$ , then  $k =$  \_\_\_\_\_ (decimal)
- (57) If  $(2 - 5i)^2 = a + bi$ , then  $a + b =$  \_\_\_\_\_
- (58)  $300_6 \div 4_6 =$  \_\_\_\_\_ <sub>6</sub>
- (59)  $121 \times 411 =$  \_\_\_\_\_
- \*(60)  $571428 \times 148 =$  \_\_\_\_\_
- (61)  $(x^3 - 2x^2 + 4x - 6) \div (x - 2)$  has a remainder of \_\_\_\_\_
- (62)  $16^2 - 17^2 + 18^2 - 19^2 =$  \_\_\_\_\_
- (63) If  $20^\circ = k\pi$  radians, then  $k =$  \_\_\_\_\_
- (64)  $3 + 4 + 7 + 11 + 18 + 29 + \dots + 123 =$  \_\_\_\_\_
- (65) The greatest integer functions  $g(x) = [2x - 7]$  has a value of \_\_\_\_\_ for  $g(\sqrt{7})$
- (66) The slope of the line perpendicular to the line  $3x + 4y = 5$  is \_\_\_\_\_
- (67) The area of the ellipse  $9x^2 + 16y^2 = 144$  is  $k\pi$ ,  $k =$  \_\_\_\_\_
- (68)  $999^2 =$  \_\_\_\_\_
- (69) If the radius of a circle is increased by 20% then its area is increased by \_\_\_\_\_ %
- \*(70)  $323502 \div 1238 =$  \_\_\_\_\_
- (71)  $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} =$  \_\_\_\_\_
- (72)  $\lim_{x \rightarrow 0} \frac{e^x - 1}{x} =$  \_\_\_\_\_
- (73) The dot product of  $v = (2, 6)$  and  $u = (1, 2)$  is \_\_\_\_\_
- (74) The range of the function  $y = x^2 - x - 2$  is  $y \geq$  \_\_\_\_\_
- (75) Let  $P_n$  represent the  $n$ -th pentagonal number. Find  $P_2 + P_3$ . \_\_\_\_\_
- (76) The polar coordinate of the rectangular coordinate  $(3, \sqrt{7})$  is  $(r, \theta)$ . Find  $r > 0$ . \_\_\_\_\_
- (77) Let  $f(x) = x^3 + 2x^2 + 3x + 4$ . Find  $f''(5) =$  \_\_\_\_\_
- (78) The harmonic mean of the roots of  $x^3 + 3x^2 + 2x + 1 = 0$  is \_\_\_\_\_
- (79)  $1^3 + 2^3 + 3^3 + \dots + 8^3 =$  \_\_\_\_\_
- \*(80)  $369 \div 37\frac{1}{2}\% \times 1.2 =$  \_\_\_\_\_