Number Sense Exam 028, 5/26/2017

(1) $2005 + 5002 =$ _____

(2) $14021 \div 7 =$ _____

(3) $12 \times 3 - 2 + 5 \times 3 =$ _____

(4) The LCM of 84 and 63 is _____

(5) $258 + 629 + 147 =$ _____

(6) $227 \times 11 =$ _____

(7) $33^2 =$ _____

(8) 2.5 gallons = _____ quarts

(9) $19 \times 19 =$ _____

*(10) $62 + 62 \times 248 =$ _____

(11) $4 \times 12 \div 3 - 11 =$ _____

(12) $7 + 12 + 17 + 22 + \ldots + 57 =$ _____

(13) $12^3 =$ _____

(14) 3 sq. feet = _____ sq. inches

(15) $63 \times 63 =$ _____

(16) $32 \times 17 + 15 \times 32 =$ _____

(17) The GCD of $24, 40$, and 64 is _____

(18) $13 \times \frac{13}{17} =$ _____ (mixed number)

(19) The LCM of $22, 33$, and 44 is _____

*(20) $(60 \div 3 \div 2 \times 3)^2 =$ _____

(21) Find the smallest integer, $k, k > 1$, such that $3k+2$ is a prime number. _____

(22) $122_6 =$ _____ 10

(23) $0.8111\ldots =$ _____ (proper fraction)

(24) If $4x - 19 = 7 - 2x$, then $x =$ _____

(25) If x is to 5 as 5 is to 8 then $x =$ _____ (decimal)

(26) If $x + y = 5$ and $y - x = 3$, then $y =$ _____

(27) If $\frac{3}{4} = \frac{3x}{5}$, then $x =$ _____

(28) Which of the following is a square number, 8, 27, or 64? _____

(29) $3\frac{1}{3} \times 1\frac{4}{5} =$ _____

*(30) $\sqrt{785} \times \sqrt{485} =$ _____

(31) The sum of the roots of $4x^3 + 2x^2 + 7x - 3 = 0$ is _____

(32) Find k if $18^2 - 15^2 = 11k$. $k =$ _____

(33) A ticket costs \$5.75. 12 tickets costs \$ _____

(34) $72 + 18 + 4 =$ _____ base 6

(35) $3 + 4 + 5 + 6 + \ldots + 25 =$ _____

(36) If $P = 2$, $Q = -2$, and $R = 4$, then $PQ + R =$ __

(37) $1011101_2 =$ _____ 8

(38) Find k if $78^2 - 72^2 = 6k$. $k =$ _____

(39) $1 + 1 + 2 + 3 + 5 + 8 + \ldots + 34 + 55 =$ _____

*(40) $(.125 \times 336)^2 =$ _____

(41) Let $f(x) = [x]$ be the greatest integer function. What is $f(3.3)$? _____

(42) The greatest integer x such that $4 - 3x \geq 2x + 5$ is _____

(43) $3101 \div 9 =$ _____ (mixed number)

(44) $\frac{5}{8} - \frac{31}{47} =$ _____

(45) $\sqrt{75} \times \sqrt{27} =$ _____

(46) How many subsets does the set $\{m, o, n, t, y\}$ have? _____

(47) $31 \times 4! + 36 \times 3! =$ _____

(48) $\ldots, 2\frac{1}{4}, 1\frac{1}{2}, x, \frac{2}{3}, \ldots$ is a geometric sequence. Find the value of x. _____

(49) If $7^2 + b^2 = 25^2$, then $|b| =$ _____

*(50) $45678 \div 143 =$ _____

(51) $\frac{5\pi}{8}$ radians = _____ degrees

(52) The larger root of $11x^2 - 8x - 3 = 0$ is _____

(53) $112 \times 104 =$ _____

(54) $(729)^{-\frac{2}{3}} =$ _____

(55) $3 - 1 - \frac{1}{3} - \frac{1}{9} - \frac{1}{27} - \ldots =$ _____

(56) $\frac{6! + 2!}{4!} =$ _____ (mixed number)

(57) The parabola $y = x^2 - 2x + 1$ has a vertex at (h, k). Find h. _____

(58) The point $(-3, -2)$ is reflected across the line $x = -1$ to the point (h, k). Find h. _____

(59) If $\log_8(6x - 4) = 2$, then $x =$ _____

*(60) $32 \times 24 + 48 \times 16 =$ _____

(61) $44^2 - 47^2 + 50^2 - 53^2 =$ _____

(62) $431_5 \div 4_5 =$ _____ $_5$

(63) $31^2 - 33^2 + 35^2 - 37^2 =$ _____

(64) How many committees of 4 people can be formed using 7 people? _____

(65) $888 \times \frac{4}{37} =$ _____

(66) When tossing 5 coins, what is the probability of getting 3 heads? _____

(67) $\cos^2(45°) - \sin^2(45°) =$ _____

(68) How many positive integers less than 22 are relatively prime to 22? _____

(69) A bag contains 5 red M's, 4 brown M's and k green M's. Find k if the probability of randomly drawing a red M is $33\frac{1}{3}\%$. _____

*(70) $(3.14)^e \times (2.718)^\pi =$ _____

(71) $4^8 \div 7$ has a remainder of _____

(72) Let $f(x) = \sqrt{3 - 4x}$ be a real valued function, where $x \in \{\text{Reals}\}$. The domain of $f(x)$ is $\{x | \, x \leq$ _____ $\}$

(73) Find $x, 0 \leq x \leq 6$, if $2x + 5 \equiv 8 (\text{mod } 7)$. _____

(74) The greatest integer function is $f(x) = [x]$. Find $f(\sqrt{10})$. _____

(75) If $0 \leq x \leq 4$ and $4! + x \equiv 2 (\text{mod } 5)$, then $x =$ ___

(76) If $f(x) = 3x - 1$ and $g(x) = 2$, then $f[g(x)] =$ ___

(77) If $\begin{bmatrix} 1 & 1 \\ 2 & 3 \end{bmatrix} \times \begin{bmatrix} 2 & 1 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, then $a + c =$ ___

(78) If the domain of $f(x) = \sqrt{3x - 5}$ is $\{x | x \geq 2\}$, then the range is $\{f(x) | f(x) \geq$ _____ $\}$

(79) If $f(x) = \frac{2x + 1}{3x + 4}$, then $f'(-1) =$ _____

*(80) $250 \sin\left(\frac{44\pi}{90}\right) =$ _____