1st Score: _____	2nd Score: _____	3rd Score: _____	**Final Score**
Grader: _____	Grader: _____	Grader: _____	

Name:_____ School:_____

SS/ID Number:_____ City:_____

Grade: 9 10 11 12 Classification: 1A 2A 3A 4A 5A 6A

TMSCA HIGH SCHOOL NUMBER SENSE DISTRICT WARM-UP (UIL G) © 2018-2019

GENERAL DIRECTIONS

1. Write only the requested information on this cover sheet. Do not make any additional marks on this cover sheet.
2. You will be given 10 minutes to take this test.
3. There are 80 problems on the test.
4. Write in ink only! It would be advantageous to use non-black ink.
5. Solve as many problems as you can in the order that they appear.
6. Problems that are skipped are considered wrong.
7. Problems that appear after the last attempted problem do not count either for or against you.
8. ALL PROBLEMS ARE TO BE SOLVED MENTALLY! [No scratch work!]
9. Only the answer may be written in the answer blank.
10. Starred [*] problems require approximate INTEGRAL answers that are within 5% of the exact answers. All other problems require exact answers.
11. All problems answered correctly are worth FIVE points. FOUR points will be deducted for all problems answered incorrectly or skipped before the last problem attempted.

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2018-19 TMSCA UIL District Warm-Up

Final _____ _____

Contestant's Number _____ 2nd _____ _____

1st _____ _____

Score **Initials**

Read directions carefully before beginning test

DO NOT UNFOLD THIS SHEET UNTIL TOLD TO BEGIN

Directions: Do not turn this page until the person conducting this test gives the signal to begin. This is a ten-minute test. There are 80 problems. Solve accurately and quickly as many as you can in the order in which they appear. ALL PROBLEMS ARE TO BE SOLVED MENTALLY. Make no calculations with paper and pencil. Write only the answer in the space provided at the end of each problem. Problems marked with a (*) require approximate integral answers; any answer to a starred problem that is within five percent of the exact answer will be scored correct; all other problems require exact answers.

The person conducting this contest should explain these directions to the contestants.

STOP -- WAIT FOR SIGNAL!

(1) $1011 + 8491 =$ _____

(2) $4.8 \times 2.5 =$ _____

(3) $1948 \div 9 =$ _____ **(mixed number)**

(4) $1110 \div 6$ has a remainder of _____

(5) $\frac{4}{7} + \frac{4}{11} =$ _____

(6) $11{,}111 = 1234 \times 9 + k$. Find k. _____

(7) $47 + 39 + 31 + 23 + 15 + 7 =$ _____

(8) $76 \times 11 =$ _____

(9) 36 is _____% of 600

***(10)** $1948 - 489 + 941 + 194 =$ _____

(11) MMMXCIV = _____ **(Arabic Numeral)**

(12) $(27)^3 \div 6$ has a remainder of _____

(13) The median of 3, 2, 5, 2, 9, 2, 0, 1, and 9 is _____

(14) The sum of the proper factors of 30 is _____

(15) If 8 Pops cost $6.32, then 5 Pops cost $ _____

(16) $720 = 27 \times 27 +$ _____

(17) 60% of 60 less 60 is _____

(18) The mode of 3, 2, 5, 2, 9, 2, 0, 1, and 9 is _____

(19) 324 is 75% of _____

***(20)** $4545 \times 454 \div 5 =$ _____

(21) The arithmetic mean of 3, 2, 5, 2, 9, 2, 0, 1, and 9 is _____

(22) How many positive prime numbers divide 72? ____

(23) $(13 \times 23 - 33) \div 6$ has a remainder of _____

(24) If A = — 1, B = 2 and C = 3, then $B^A \div C =$ _____

(25) The smaller root of $6x^2 - 5x - 6 = 0$ is _____

(26) How many positive integers divide 72? _____

(27) $4\frac{2}{5} - 2\frac{1}{3} =$ _____ **(mixed number)**

(28) $\frac{4^2}{(5^2)(2^2)} =$ _____ **(decimal)**

(29) 0.3888... = _____ **(fraction)**

***(30)** $\left[\sqrt{730} - \sqrt{290}\right]^3 =$ _____

(31) $8\frac{2}{3} \times 9\frac{3}{4} =$ _____ **(mixed number)**

(32) $\sqrt{45 \times 125} =$ _____

(33) $321_6 =$ _____ **10**

(34) If $f(x) = 16x^2 - 40x + 25$ then f(5) is _____

(35) Set A has 15 elements, $A \cup B$ has 20 elements, and $A \cap B$ has 5 elements. Set B has _____ element.

(36) The measure of an exterior angle of a regular nonagon is _____ degrees

(37) $5\frac{1}{3} \div 2\frac{2}{9}$ = _____ (mixed number)

(38) 1.333... is _____ % more than 0.8

(39) The largest root of $(x - 1)^2 = \frac{4}{9}$ is _____

*(40) $\sqrt{475180}$ = _____

(41) 994×997 = _____

(42) If $4^x = \frac{1}{256}$, then x = _____

(43) The 3-digit number 32k is divisible by both 2 and 3. Find k. _____

(44) Let $|3x - 4| = |x + 5|$ and $x > 0$. x = _____

(45) ${}_8C_3$ = _____

(46) (x, y) is the midpoint of the line segment through endpoints (3, — 2) and (— 6, 4). x = _____

(47) The length of the line segment through endpoints (3, — 2) and (— 6, 4) is k. Find k^2. _____

(48) $8^3 - 11^3$ = _____

(49) If $12^x = 432$ then $12^{(x+1)}$ = _____

*(50) $3{,}252{,}019 \times 0.555...$ = _____

(51) The vertex of $y = x^2 - 4x - 1$ is (h, k). hk = _____

(52) (111)(13)(k) = 70,707. k = _____

(53) 426×241 = _____

(54) 11010101_2 = _____ 8

(55) How many 4-digit even numbers greater than 1,325 and less than 2,019 exist? _____

(56) The coefficient of the x^2y^3 term in the binomial expansion of $(3x + 2y)^5$ is _____

(57) $1 + 3 + 6 + 10 + 15 + ... + 66 + 78$. _____

(58) $(325_6 - 253_6)(4_6)$ = _____ 6

(59) If $x^2 + y^2 = 130$, where x and y are consecutive odd positive integers, then $x + y$ = _____

*(60) $(23)^5 = 23 \times$ _____

(61) Find the sum of all negative integers x such that $3x - 2 \geq -32$. _____

(62) Let $(1 - 5i)(3 + 7i) = a + bi$, then $a + b$ = _____

(63) The first four digits of the decimal for $\frac{5}{A0}$ base 11 is 0._____ base 11

(64) The frequency of $f(x) = 2 + 3\sin(5\pi x - 7)$ is _____

(65) If $\begin{vmatrix} -9 & 13 \\ -6 & 11 \end{vmatrix}$ = x then 3x — 2 = _____

(66) $\cos(\frac{11\pi}{3})$ = _____

(67) If 6 painters can do a job in 12 hours, how long would it take 8 painters? _____ hours

(68) The simplified coefficient of the x^2y^4 term in the expansion of $(2x - 3y)^6$ is _____

(69) $\frac{7}{8} + \frac{7}{16} + \frac{7}{24}$ = _____

*(70) $4166\frac{2}{3} \div 25^2 \times 14.4$ = _____

(71) If $1A5_b = 236$ then 51_b = _____

(72) Find x, $1 \leq x \leq 5$, if $6x - 3 \equiv 6 \pmod 9$. x = _____

(73) $f''(x) = 16$, $f'(0) = 3$, and $f(0) = 1$. f(1) = _____

(74) 45° C = _____° F

(75) $15 \times \frac{11}{13} + 2$ = _____ (mixed number)

(76) $\int_0^5 (3 - 2x)$ = _____

(77) The slope of the line tangent to $y = x - x^3$ at (2, — 6) is _____

(78) The odds of rolling a sum of 2, 3, or 12 with a pair of dice is _____

(79) A bushel and a peck has the same capacity as P pints. Find P. _____

*(80) How many seconds are in March, 2019? _____

2018-19 TMSCA UIL District Warm-Up Number Sense - Answer Key

***number) x — y means an integer between x and y inclusive**

NOTE: If an answer is of the type like $\frac{2}{3}$ it cannot be written as a repeating decimal

(1) 9,502

(2) 12

(3) $216\frac{4}{9}$

(4) 0

(5) $\frac{72}{77}$

(6) 5

(7) 162

(8) 836

(9) 6

***(10) 2,465 — 2,723**

(11) 3,094

(12) 3

(13) 2

(14) 42

(15) $3.95

(16) — 9

(17) — 24

(18) 2

(19) 432

***(20) 392,052 — 433,320**

(21) $\frac{11}{3}, 3\frac{2}{3}$

(22) 2

(23) 2

(24) $\frac{1}{6}$

(25) $-\frac{2}{3}$

(26) 12

(27) $2\frac{1}{15}$

(28) .16

(29) $\frac{7}{18}$

***(30) 947 — 1,046**

(31) $84\frac{1}{2}$

(32) 75

(33) 121

(34) 225

(35) 10

(36) 40

(37) $2\frac{2}{5}$

(38) $\frac{200}{3}, 66\frac{2}{3}$

(39) $\frac{5}{3}, 1\frac{2}{3}$

***(40) 655 — 723**

(41) 991,018

(42) — 4

(43) 4

(44) 4.5, $\frac{9}{2}, 4\frac{1}{2}$

(45) 56

(46) $-1.5, -\frac{3}{2}, -1\frac{1}{2}$

(47) 117

(48) — 819

(49) 5,184

***(50) 1,716,344 — 1,897,011**

(51) — 10

(52) 49

(53) 102,666

(54) 325

(55) 347

(56) 720

(57) 364

(58) 212

(59) 16

***(60) 265,849 — 293,833**

(61) — 55

(62) 30

(63) 0555

(64) 2.5, $\frac{5}{2}, 2\frac{1}{2}$

(65) — 65

(66) .5, $\frac{1}{2}$

(67) 9

(68) 4,860

(69) $\frac{77}{48}, 1\frac{29}{48}$

***(70) 92 — 100**

(71) 56

(72) 3

(73) 12

(74) 113

(75) $14\frac{9}{13}$

(76) — 10

(77) — 11

(78) .125, $\frac{1}{8}$

(79) 80

***(80) 2,544,480 — 2,812,320**