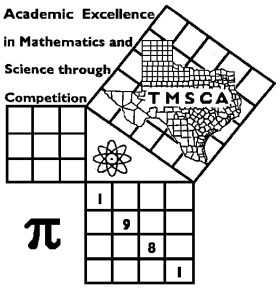
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

PLACE LABEL BELOW

Name:_____ School:_____

SS/ID Number:_____ City:_____

Grade: 4 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A



TMSCA MIDDLE SCHOOL

NUMBER SENSE

TEST #5©

NOVEMBER 16, 2019

GENERAL DIRECTIONS

1. Write only the requested information on this coversheet. 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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2019-2020 TMSCA Middle School Number Sense Test #5

(1) $2020 \times 18 =$ _____

(2) $57 - 37 + 46 - 26 + 27 - 7 =$ _____

(3) $\frac{13}{40} =$ _____ %(decimal)

(4) $56 \times 11 =$ _____

(5) $4300 \div 25 =$ _____

(6) $0.375 =$ _____ (fraction)

(7) $\frac{12}{13} \times 52 =$ _____

(8) $98531 \div 9$ has a remainder of _____

(9) $63 \times 5 \div (2^2 + 3) =$ _____

***(10)** $723 - 427 + 1239 =$ _____

(11) $(23 + 27 + 31 + 35 + 39 + 43 + 47) \div 5 =$ _____

(12) $\frac{18}{45} =$ _____ (common fraction)

(13) $26^2 =$ _____

(14) $19 \times 11 + 19 \times 49 =$ _____

(15) $73 \times 51 =$ _____

(16) $\frac{5}{14} + \frac{4}{7} =$ _____ (fraction)

(17) $93 \times 87 =$ _____

(18) $76 \times 36 =$ _____

(19) LXV + CXLI= _____ (Arabic Numeral)

***(20)** $353 \times 599 =$ _____

(21) 85 feet = _____ inches

(22) $11872 = 106 \times$ _____

(23) 4235 grams = _____ kilograms

(24) $645 \times 111 =$ _____

(25) $64 \div 5\frac{1}{3} =$ _____

(26) What is the LCM of 15 and 40? _____

(27) $16 \times 11\frac{1}{4} =$ _____

(28) The multiplicative inverse of $\frac{4}{17}$ is _____(decimal)

(29) $9\frac{1}{3}\% =$ _____ (fraction)

***(30)** $\frac{61!}{58!} =$ _____

(31) The cube root of 729 is _____

(32) The square root of 5184 is _____

(33) 108 has how many distinct prime divisors? _____

(34) 108 has how many positive integral divisors? _____

(35) $83^2 - 72^2 =$ _____

(36) $44^2 + 36^2 =$ _____

(37) $17^2 + 51^2 =$ _____

(38) $7\frac{3}{13} \times 7\frac{10}{13} =$ _____ (mixed number)

(39) If $5x + 14 = -16$, then $x =$ _____

***(40)** 2019 gallons = _____ cubic inches

(41) The sum of the 96 smallest positive even integers is _____

(42) $17 \times \frac{3}{5} =$ _____ (mixed number)

(43) $\sqrt[3]{79507} =$ _____

(44) The number of subsets with 6 elements of {i,o,w,a,p,r,k,h,s} is _____

(45) The positive difference in the interior angle and exterior angle of a dodecagon is_____°

(46) $43^2 + 47^2$ =_____

(47) If a trapezoid has area 126 and the height is 14, then the sum of the bases is_____

(48) Find the 8th hexagonal number._____

(49) $\frac{5}{7} + \frac{10}{7} + \frac{15}{7} + \ldots + 5$ = _____

***(50)** Find the length of the diagonal of a square with area 4900. _____

(51) The sum of the 5th and 6th triangular numbers is_____

(52) $\frac{13}{16} \times 14$ = _____(mixed number)

(53) f(x) = mx + 5. f(4) + f(8) = 106, m =_____

(54) The endpoints of the diameter of a circle are (4, 7) and (8, 13). The center is (h, k). k = _____

(55) If x, 13, y, … forms a geometric sequence, then xy = _____

(56) 4! + 5! + 6! = n × 4! , n =_____

(57) $4^{16} \div 17$ has a remainder of _____

(58) $\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72}$ =_____(fraction)

(59) The length of the inner diagonal of a $2 \times 2\sqrt{3} \times 3$ rectangular prism is_____

***(60)** $\sqrt[3]{190 \times 210 \times 55}$ = _____

(61) $\sqrt{53 \times 61 + 16}$ =_____

(62) Write the first 4 digits of $\frac{43}{90}$ is 0._____

(63) $(35_8)^2$ = _____$_8$

(64) $2^4 \times 3^2 \times 5^3$ = _____

(65) The slope of a line perpendicular to 4x – 3y = 19 is _____

(66) If $\frac{a}{b} + \frac{b}{a} = 2\ \frac{81}{112}$, where $a > b$ and a and b are relatively prime, then a = _____

(67) The probability of rolling a sum of 9 when rolling a pair of 6-sided die is _____

(68) If the two roots of $x^2 + bx + c = 0$ are $(-3 + 5i)$ and $(-3 - 5i)$, then c =_____

(69) $1^2 + 2^2 + 3^2 + \ldots + 11^2$ =_____

***(70)** $\frac{1}{7} \times 348 \times 1260$ = _____

(71) If $f(x) = 3x^2 - 5x - 14$, then f(6) = _____

(72) The line 2x + 3y = C has x-intercept 21. Its y-intercept is _____

(73) Find the sum of the distinct prime divisors of $(5^2 \times 3^7 + 3^9)$. _____

(74) The sum of the integral solutions of $|x - 6| \leq 5$ is _____

(75) x(x – 3) < 60 has how many positive integral solutions?_____

(76) If $\sqrt{25! \times 24!} = k \times 23!$, then k =_____

(77) If $9^{x+1} = 54$, then 9^x =_____

(78) The minimum value of $f(x) = x^2 - 2x + 4$ is_____.

(79) The probability of getting 5 heads when flipping 7 coins is _____

***(80)** 81.8181 × 486 = _____

2019-2020 TMSCA Middle School Number Sense Test 5 Key

(1) 36360

(2) 60

(3) 32.5

(4) 616

(5) 172

(6) $\frac{3}{8}$

(7) 48

(8) 8

(9) 45

***(10) 1459 – 1611**

(11) 49

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

(13) 676

(14) 1140

(15) 3723

(16) $\frac{13}{14}$

(17) 8091

(18) 2736

(19) 206

***(20) 200875 – 222019**

(21) 1020

(22) 112

(23) 4.235

(24) 71595

(25) 12

(26) 120

(27) 180

(28) 4.25

(29) $\frac{7}{75}$

***(30) 205143 – 226737**

(31) 9

(32) 72

(33) 2

(34) 12

(35) 1705

(36) 3232

(37) 2890

(38) $56\frac{30}{169}$

(39) – 6

***(40) 443070 – 489708**

(41) 9312

(42) $10\frac{1}{5}$

(43) 43

(44) 84

(45) 120

(46) 4058

(47) 18

(48) 120

(49) 20

***(50) 95 – 103**

(51) 36

(52) $11\frac{3}{8}$

(53) 8

(54) 10

(55) 169

(56) 36

(57) 1

(58) $\frac{5}{36}$

(59) 5

***(60) 124 – 136**

(61) 57

(62) 4777

(63) 1511

(64) 18000

(65) $-\frac{3}{4}$

(66) 16

(67) $\frac{1}{9}$

(68) 34

(69) 506

***(70) 59508 – 65772**

(71) 64

(72) 14

(73) 22

(74) 66

(75) 9

(76) 120

(77) 6

(78) 3

(79) $\frac{21}{128}$

***(80) 37776 – 41751**