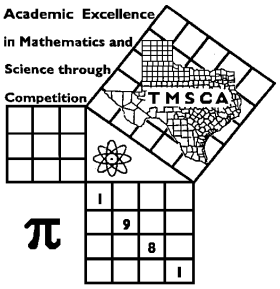
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 KICK-OFF TEST©

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 Kickoff Test

(1) $2019 + 2020 + 2021 + 2022 =$ _____

(2) $83 \times 3 =$ _____

(3) $3514 \div 7 =$ _____

(4) $28 \times 25 =$ _____

(5) $83 \times 12 =$ _____

(6) $81723 \div 11$ has a remainder of _____

(7) $19 \times 11 =$ _____

(8) $12^2 =$ _____

(9) $\frac{4}{7} \times 140 =$ _____

***(10)** $752 + 275 + 2571 =$ _____

(11) $85^2 =$ _____

(12) $\frac{4}{9} + \frac{2}{5} =$ _____ (fraction)

(13) $43 \times 63 =$ _____

(14) $12 + 13 + 14 + 15 + 16 + 17 + 18 =$ _____

(15) The mean of the primes between 10 and 20 is____

(16) $8\frac{1}{5}\% =$ _____(fraction)

(17) $13 \times 18 + 42 \times 18 =$ _____

(18) $45 \times 55 =$ _____

(19) What is the smallest number that 42 and 60 divide into with a remainder of 0? _____

***(20)** $2203 \times 279 =$ _____

(21) $96 \times 88 =$ _____

(22) $22 \times (18 \times 3 + 6) \div 2 =$ _____

(23) $10920 = 104 \times$ _____

(24) The multiplicative inverse of 3.6 is_____

(25) $42 \div 3.5 =$ _____

(26) $\frac{2}{5} + \frac{1}{2} =$ _____(decimal)

(27) The square root of 2116 is_____

(28) $764 \times 111 =$ _____

(29) $14^2 + 42^2 =$ _____

***(30)** $2020^2 =$ _____

(31) The next 3 terms in the sequence 8, 10, 14, 20, 28, … , have a sum of_____

(32) 25×49 has_____ positive integral divisors

(33) If the area of a triangle is 63 and the base is 7, then the height is _____

(34) If $5x = 13$, then $25x^2 + 1 =$ _____

(35) $6^3 =$ _____

(36) $8\frac{4}{13} \times 8\frac{9}{13} =$ _____(mixed number)

(37) The 9^{th} triangular number is _____

(38) If $f(x) = x^2 - 18x + 81$ and $f(131) = k^2$, with $k > 0$, and k is an integer, then k =_____

(39) $18 \times 5\frac{5}{9} =$ _____

***(40)** $\sqrt[3]{31420517} =$ _____

(41) If $\frac{7}{x} = \frac{5}{3}$, then x = _____ (decimal)

(42) If $x = 5$ and $y = 4$, then $x^2 + 2xy + y^2 =$ _____

(43) 90% of 111 is 37% of _____

(44) $\sqrt{1764}$ =_____

(45) Find the sum of the measure of the interior angles of an octagon._____°

(46) 45^2 =_____

(47) The number of distinct diagonals in a 15-sided polygon is _____

(48) The hypotenuse of a right triangle with legs 7 and 24 is_____

(49) 126_9 =_____$_{10}$

*(50) $18 \times 21 \times 24$ =_____

(51) The sum of the first 9 positive odd integers added to the sum of the first 40 positive odd integers is equal to the sum of the first n positive odd integers, n = _____

(52) $\frac{15}{17} \times 15$ = _____(mixed number)

(53) 0.325 =_____(common fraction)

(54) The slope of a line with x-intercept (4, 0) and y-intercept (0, – 5) is_____

(55) $8\frac{5}{6} \times 10\frac{5}{6}$ =_____(mixed number)

(56) What is the units digit of (147 + 296) when converted to base 5?_____

(57) $63^2 + 37 \times 63$ = _____

(58) If f(x) = 18x + 5, then f(15) + f(4) + f(6) = _____

(59) The 33rd term of 14, 39, 64, 89, … is_____

*(60) The area of a rectangle with width 348 and perimeter 2000 is_____

(61) The sum of the coefficients of x(x + 1)(x + 2)(x + 3)(x + 4) is _____

(62) 125 + 75 + 20 + 4 = _____base 5

(63) 0.360360… = _____(common fraction)

(64) Find the 7th hexagonal number. _____

(65) $\frac{1+3+5+7+\cdots+k}{1+3+5+\cdots+9} = 9^2$, k =_____

(66) Find the sum of the positive integral divisors of 2020. _____

(67) The first 4 digits in the decimal expansion of $\frac{457}{900}$ is 0. _____

(68) The sum of the solutions of $|x - 4| = 5$ is _____

(69) The shortest leg of a 30 – 60 – 90 right triangle with a hypotenuse of 24 is _____

*(70) 95^3 =_____

(71) If the coefficients of $f(x) = x^2 + bx + c$ are real and one root is $4 + 2\sqrt{3}$, then b = _____

(72) The axis of symmetry of f(x) = (x – *a*)(x – 4) is x = 11, *a* =_____

(73) If $f(x^2 + 1) = 2x + 1$ and f(17) = p , then the sum of the possible values of p is_____

(74) The set {a,r,g,y,l,e,s,o,x} has how many subsets with either 2 elements or 7 elements? _____

(75) $9^{14} \div 13$ has a remainder of_____

(76) How many positive integers less than or equal to 36 are relatively prime to 36?_____

(77) If the x-coefficient of of (2x + 9)(3x + r) is 49, then r = _____

(78) If $9^{3x} = 3^{4x-10}$, then x = _____

(79) If $x^2 - 2xy + y^2 = 28$, xy = 42, and x + y > 0, then x + y =_____

*(80) Find the surface area of a rectangular solid with edges 25, 30, and 40. _____

2019-2020 TMSCA Middle School Kick-Off Online Meet Number Sense Key

(1) 8082

(2) 249

(3) 502

(4) 700

(5) 996

(6) 4

(7) 209

(8) 144

(9) 80

***(10) 3419 – 3777**

(11) 7225

(12) $\frac{38}{45}$

(13) 2709

(14) 105

(15) 15

(16) $\frac{41}{500}$

(17) 990

(18) 2475

(19) 420

***(20) 583906 – 645368**

(21) 8448

(22) 660

(23) 105

(24) $\frac{5}{18}$

(25) 12

(26) .9

(27) 46

(28) 84804

(29) 1960

***(30) 3876380 – 4284420**

(31) 152

(32) 9

(33) 18

(34) 170

(35) 216

(36) $72\frac{36}{169}$

(37) 45

(38) 122

(39) 100

***(40) 300 – 331**

(41) 4.2

(42) 81

(43) 270

(44) 42

(45) 1080

(46) 2025

(47) 90

(48) 25

(49) 105

***(50) 8619 – 9525**

(51) 41

(52) $13\frac{4}{17}$

(53) $\frac{13}{40}$

(54) $\frac{5}{4}$**,** $1\frac{1}{4}$ **or 1.25**

(55) $95\frac{25}{36}$

(56) 3

(57) 6300

(58) 465

(59) 814

***(60) 215552 – 238240**

(61) 120

(62) 1344

(63) $\frac{40}{111}$

(64) 91

(65) 89

(66) 4284

(67) 5077

(68) 8

(69) 12

***(70) 814507 – 900243**

(71) – 8

(72) 18

(73) 2

(74) 72

(75) 3

(76) 12

(77) 11

(78) – 5

(79) 14

***(80) 5605 – 6195**