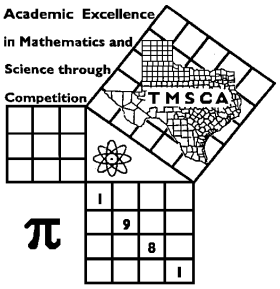
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 #1©

OCTOBER 19, 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 #1

(1) $2020 + 2022 + 2024 + 2026 =$_____

(2) $19 \times 14 =$_____

(3) $16 + 18 - 11 + 12 =$_____

(4) $637 \div 7 =$_____

(5) $95 \times 25 =$_____

(6) 48 % =_____(fraction)

(7) 21347 ÷ 11 has a remainder of_____

(8) 961854 ÷ 6 =_____

(9) $49 \times 0.25 =$ _____(decimal)

***(10)** $273 \times 2020 =$ _____

(11) $49 \times 69 =$_____

(12) 83 ÷ 5 =_____(mixed number)

(13) $37 \times 63 =$_____

(14) $111 \times 96 = 37 \times$ _____

(15) $\frac{18 \times 14 \times 35}{2 \times 6 \times 7} =$_____

(16) $1500 = 50 \times 7 + 50 \times 11 + 50 \times$ _____

(17) The median of 3, 5, 13, 24, 9, and 15 is _____

(18) $168 \times 12\frac{1}{2} =$_____

(19) $108 \times 109 =$_____

***(20)** $143 \times 635 + 523 \times 635 =$ _____

(21) 98 ÷ 3.5 = _____

(22) $45 \times (21 \times 3 + 7) \div 5 =$ _____

(23) 11536 = 103 ×_____

(24) The multiplicative inverse of 0.6 is_____(mixed number)

(25) The cube root of the cube root of 512 is_____

(26) $\frac{4}{5} + \frac{3}{4} =$ _____(decimal)

(27) The square root of 8464 is_____

(28) $438 \times 101 =$_____

(29) 43 base 7 = _____base 10

***(30)** $18^4 =$_____

(31) There are _____ primes between 30 and 45.

(32) 245 has _____ positive integral divisors

(33) $11.2 \times 11.8 =$ _____ (mixed number)

(34) How much does a $80 item cost that is on sale for 12.5% off? $ _____

(35) If the mean of 12, 52, and x is 32, then x = _____

(36) $\frac{9}{13} + 1\frac{4}{9} =$_____(mixed number)

(37) The 6^{th} hexagonal number is_____

(38) If $f(x) = x^2 - 10x + 25$ and f(108) = _____

(39) $14 \times 3.142857142857\ldots =$ _____

***(40)** $\sqrt{8324176} =$ _____

(41) 85% of 88 is 17% of_____

(42) The vertex angle in an isosceles triangle with base angle 28° is _____°

(43) 123 millimeters + 123 cm =_____meters

(44) How many edges does a cube have?_____

(45) $(2 + 4 + 6 + \ldots + 48) - (2 + 4 + 6 + \ldots + 18) =$_____

(46) The diagonal of a square with side $7\sqrt{18}$ is ____

(47) The measure of an exterior angle of a regular undecagon is_____°

(48) $83^2 + 22^2$ =_____

(49) If f(x) = $\frac{x^3+3x^2+3x+1}{x+1}$, then f(4) = _____

***(50)** $5\frac{1}{5} \times 483$ = _____

(51) How many subsets does {w,a,s,h,i,n,g,t,o} have that contain exactly 3 elements?_____

(52) $\frac{15}{17} \times 12$ = _____(mixed number)

(53) The area of an equilateral triangle with side 15 is $k\sqrt{3}$, k = _____(decimal)

(54) If 4x + By = 11 has a slope of $\frac{1}{3}$, then B = _____

(55) $15\frac{1}{3} \times 12\frac{1}{3}$ =_____(mixed number)

(56) $243_5 \times 11_5$ =_____$_5$

(57) If 3, x, 9, y, 27, … is a geometric sequence, then xy = _____

(58) If f(x) = 12x + 15, then f(2) + f(5) + f(8) = _____

(59) The two solutions of $|x - c| = d$ are – 12 and 18, the value of c is_____

***(60)** The area of a square with diagonal 543 is_____

(61) The geometric mean of 12 and 10 is $a\sqrt{b}$, where b has no perfect square divisor other than 1, a + b =_____

(62) 128 + 48 + 3 = _____ base 4

(63) 0.234234… = _____ (common fraction)

(64) If f(3x + 2) = 12x + 7, then f(11) =_____

(65) The x^2 coefficient of $(2x^2 + 9x + 3)(x^2 + 2x – 5)$ is_____

(66) $13^2 + 91^2$ =_____

(67) 95 × 55 =_____

(68) $(43_7)^2$ = _____$_7$

(69) The area 30 – 60 – 90 right triangle with a hypotenuse of $8\sqrt{3}$ is $k\sqrt{3}$, k =_____

***(70)** The volume of a rectangular prism with dimensions 23 by 35 by 45 is _____

(71) P and Q are the roots of $x^2 – 4x + 5 = 0$. $P^2 + 7PQ + Q^2$ =_____

(72) The axis of symmetry of f(x) = (x – *a*)(x – *b*) is x = 13, *a* + *b* = _____

(73) The number of distinct real roots of $(2x – 5)(x^2 – 6x + 9) = 0$ is_____

(74) If f(x) is a parabola with vertex (7, 5), then 2f(x + 4) + 9 has vertex (h, k). k = _____

(75) How many distinct 7-letter arrangements can be made from {a,m,a,g,g,i,e}?_____

(76) The sum of the integral solutions of $|4x - 8| \leq 36$ is_____

(77) How many real roots does $f(x) = – 3(x – 4)^2 – 7$ have?_____

(78) log 4 + log 25 =_____

(79) $3\frac{1}{24} - \frac{3}{8}$ =_____(improper fraction)

***(80)** $\sqrt[3]{2200} \times \sqrt{2200}$ = _____

2019-2020 TMSCA Middle School Number Sense Test 1 Key

(1) 8092

(2) 266

(3) 35

(4) 91

(5) 2375

(6) $\frac{12}{25}$

(7) 7

(8) 160309

(9) 12.25

***(10) 523887 – 579033**

(11) 3381

(12) $16\frac{3}{5}$

(13) 2331

(14) 288

(15) 105

(16) 12

(17) 11

(18) 2100

(19) 11772

***(20) 401765 – 444055**

(21) 28

(22) 630

(23) 112

(24) $1\frac{2}{3}$

(25) 2

(26) 1.55

(27) 92

(28) 44238

(29) 31

***(30) 99728 – 110224**

(31) 4

(32) 6

(33) $132\frac{4}{25}$

(34) 70.00

(35) 32

(36) $2\frac{16}{117}$

(37) 66

(38) 10609

(39) 44

***(40) 2741 – 3029**

(41) 440

(42) 124

(43) 1.353

(44) 12

(45) 510

(46) 42

(47) $\frac{360}{11}$ **or** $32\frac{8}{11}$

(48) 7373

(49) 25

***(50) 2387 – 2637**

(51) 84

(52) $10\frac{10}{17}$

(53) 56.25

(54) – 12

(55) $189\frac{1}{9}$

(56) 3223

(57) 81

(58) 225

(59) 3

***(60) 140054 – 154795**

(61) 32

(62) 2303

(63) $\frac{26}{111}$

(64) 43

(65) 11

(66) 8450

(67) 5225

(68) 2542

(69) 24

***(70) 34414 – 38036**

(71) 41

(72) 26

(73) 2

(74) 19

(75) 1260

(76) 38

(77) 0

(78) 2

(79) $\frac{8}{3}$ **or** $2\frac{2}{3}$

***(80) 580 – 640**