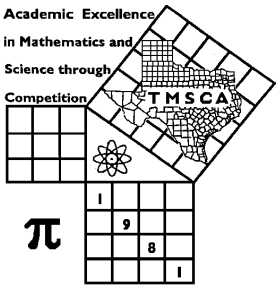
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 #2©

OCTOBER 26, 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 #2

(1) $2024 \div 8 =$ _____

(2) $50 \times 64 =$ _____

(3) $60 - 55 + 50 - 45 + 40 - 35 =$ _____

(4) $18 \times 16 =$ _____

(5) $0.625 =$ _____ (fraction)

(6) $3210987 \div 9$ has a remainder of _____

(7) $25 \times (11^2 + 9) \div 5 =$ _____

(8) $\frac{17}{15} \times 75 =$ _____

(9) $\frac{14}{25} \times \frac{5}{2} =$ _____ (decimal)

***(10)** $2137 - 3418 + 6735 =$ _____

(11) Which of the following is greater $\frac{3}{11}$ or $\frac{7}{29}$? _____

(12) $\frac{24 \times (6^2 - 1)}{3} =$ _____

(13) $23 \times 17 + 3^2 =$ _____

(14) 7 cups = _____ quarts

(15) $24^2 =$ _____

(16) $\frac{11}{15} - \frac{1}{3} =$ _____ (fraction)

(17) $88 \times 93 + 10 \times 93 =$ _____

(18) $13 \div 14 + 29 \div 14 + 14 =$ _____

(19) $165 \times 33\frac{1}{3} =$ _____

***(20)** $437 \times 642 =$ _____

(21) $15 \times 34 =$ _____

(22) The arithmetic mean of 16, 24 and _____ is 24.

(23) $3.6 \times 44 =$ _____ (decimal)

(24) $11445 = 105 \times$ _____

(25) $1800 = 18^2 + 18 \times$ _____

(26) $1 + 3 + 5 + \ldots + 45 =$ _____

(27) $45 \times 55 =$ _____

(28) How many even integers are between 20 and 50? _____

(29) $62^2 - 18^2 =$ _____

***(30)** $312473 \div 399 =$ _____

(31) $20\frac{2}{9} = 4\frac{1}{3} \times$ _____ (mixed number)

(32) 63 more than 25% of 48 is _____

(33) The sum of the primes between 20 and 30 is _____

(34) If $2 + 4 + 6 + \ldots + k = 31(32)$, then $k =$ _____

(35) $61_9 =$ _____ $_{10}$

(36) If Devonta invests $3200 at 8% for two years, how much interest will he earn? $ _____

(37) $32 \times 72 =$ _____

(38) If $f(x) = 3x^2 - 4x + 2$, then $f(4) =$ _____

(39) $469 \times 111 =$ _____

***(40)** $\sqrt{471932} =$ _____

(41) A square with diagonal $8\sqrt{5}$ has an area of _____

(42) The sum of the first 28 positive odd integers is how much greater than the sum of the first 12 positive odd integers? _____

(43) If $1 + 2 + 3 + 4 + \ldots + 132 = 66k$, then $k =$ _____

(44) The perimeter of a regular undecagon with sides of 83 is_____

(45) $95 \times 108 =$_____

(46) $17^2 + 51^2 =$_____

(47) If $3x - 5y = 18$ is perpendicular to $Ax + 6y = 31$, then A =_____

(48) Find the area of a right triangle with a leg of 9 and hypotenuse 15._____

(49) $245_{10} =$ _____$_8$

***(50)** $625 \times 472 =$_____

(51) $27 \times \frac{26}{29} =$_____(mixed number)

(52) If $3! + 6! = k \times 3!$, then k = _____

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

(54) Find the sum of the x-intercept and y-intercept of $3x + 5y = 120$. _____

(55) If $3^5 \times 9^{11} = 3^k$, then k = _____

(56) $8 \times 9 \times 10 \times 11 + 1 =$_____

(57) $563_8 =$ _____$_2$

(58) $6^{12} \div 11$ has a remainder of _____

(59) How much greater is the positive solution of $|x - 13| = 19$ than the negative solution? _____

***(60)** The inner diagonal of a cube with edge 595 is_____

(61) $0.1222\ldots + 0.1777\ldots =$_____ (fraction)

(62) The sum of the next two terms of the sequence 1, 1, 2, 3, 5, 8, 13, 21, … is_____

(63) $\sqrt[4]{\frac{256}{81}} =$_____(mixed number)

(64) If $(15^2 + 45^2) + (15^2 + 105^2) = 15^2(k)$, then k = ___

(65) Find the probability of drawing 2 red marbles without replacement when drawing from a bag with 7 green marbles and 5 red marbles.____

(66) The product of the roots of $f(x) = ax^2 + bx + c$ if the roots are $4 + 2\sqrt{5}$ and $4 - 2\sqrt{5}$ is_____

(67) If $f(x) = 4x^2 + 3$, then $f(17) - f(13) =$ _____

(68) The probability of obtaining a sum of 7 or 11 when rolling a pair of dice is_____

(69) $32^2 - 28^2 + 12^2 - 8^2 =$ _____

***(70)** Find the surface area of a tetrahedron with edge 30._____

(71) The sum of the integral solutions of $|x - 5| + 3 \leq 11$ is _____

(72) The roots of $f(x) = 11x^3 - 42x^2 + 50x - 32$ are P, Q and R. PQ + QR + PR =_____

(73) If $f(x) = 5x^2 - 4x + 3$, then f(5) = _____

(74) $906^2 =$_____

(75) $\frac{7}{20} + \frac{7}{30} + \frac{7}{42} + \frac{7}{56} =$ _____ (fraction)

(76) The number of triangles which can be drawn in an 14-sided polygon from a given vertex is _____

(77) If $ax^2 + 12x + 6 = 0$ has 1 distinct real root, a =___

(78) $196^{\frac{3}{2}} =$ _____

(79) $1 + 2 + 2^2 + 2^3 + 2^4 + 2^5 + 2^6 + 2^7 =$ _____

***(80)** $1^2 + 2^2 + 3^2 + \ldots + 30^2 =$_____

2019-2020 TMSCA Middle School Number Sense Test 2 Key

(1) 253

(2) 3200

(3) 15

(4) 288

(5) $\frac{5}{8}$

(6) 3

(7) 650

(8) 85

(9) 1.4

***(10) 5182 – 5726**

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

(12) 280

(13) 400

(14) $\frac{7}{4}$**,** $1\frac{3}{4}$**, or 1.75**

(15) 576

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

(17) 9114

(18) 17

(19) 5500

***(20) 266527 – 294581**

(21) 510

(22) 32

(23) 158.4

(24) 109

(25) 82

(26) 529

(27) 2475

(28) 14

(29) 3520

***(30) 744 – 822**

(31) $4\frac{2}{3}$

(32) 75

(33) 52

(34) 62

(35) 55

(36) 512.00

(37) 2304

(38) 34

(39) 52059

***(40) 653 – 721**

(41) 160

(42) 640

(43) 133

(44) 913

(45) 10260

(46) 2890

(47) 10

(48) 54

(49) 365

***(50) 280250 – 309750**

(51) $24\frac{6}{29}$

(52) 121

(53) 75

(54) 64

(55) 27

(56) 7921

(57) 101110011

(58) 3

(59) 38

***(60) 980 – 1082**

(61) $\frac{3}{10}$

(62) 89

(63) $1\frac{1}{3}$

(64) 60

(65) $\frac{5}{33}$

(66) – 4

(67) 480

(68) $\frac{2}{9}$

(69) 320

***(70) 1481 – 1636**

(71) 85

(72) $\frac{50}{11}$ **or** $4\frac{6}{11}$

(73) 108

(74) 820836

(75) $\frac{7}{8}$

(76) 78

(77) 6

(78) 2744

(79) 255

***(80) 8983 – 9927**