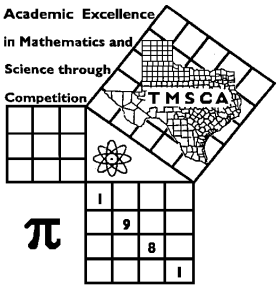
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 #7©

JANUARY 12, 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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2018 – 2019 TMSCA Middle School Number Sense Test #7

(1) $638 - 243 =$ _____

(2) $37 \times 7 =$ _____

(3) $368466 \div 6 =$ _____

(4) $27 \times 13 =$ _____

(5) $17\frac{1}{3}\% =$ _____ (fraction)

(6) $23742 \div 9$ has a remainder of _____

(7) $0.66 =$ _____ (fraction)

(8) $12 \times (1 + 3 + 5 + 7 + 9) \div 3 =$ _____

(9) $\frac{1}{7} =$ _____ %(mixed number)

***(10)** $413 + 2325 - 787 =$ _____

(11) $25 \times 188 =$ _____

(12) $106 \times 114 =$ _____

(13) $71 \times 79 =$ _____

(14) $37 \times 43 =$ _____

(15) $6 \times 7 \times 8 =$ _____

(16) $\frac{3}{7} + \frac{1}{4} =$ _____ (fraction)

(17) $93 \times 95 =$ _____

(18) $43 \times 62 - 13 \times 62 =$ _____

(19) $37 \times 66 =$ _____

***(20)** $363 \times 333.33 =$ _____

(21) $85 \times 34 =$ _____

(22) 14 more than 70% of 50 is _____

(23) $2019 \div 11$ has a remainder of _____

(24) $8 \div 2\frac{2}{3} =$ _____

(25) The cube root of 64 is _____

(26) $9 \times 3 \div 7 + 8 \times 8 \div 7 =$ _____

(27) $\frac{3}{7} + \frac{6}{7} + \frac{9}{7} + \frac{12}{7} + \frac{15}{7} =$ _____ (mixed number)

(28) The area of a square with side 23 is _____

(29) $16^2 + 48^2 =$ _____

***(30)** $635814 \div 775 =$ _____

(31) The angles of a quadrilateral are 85°, 95°, 105°, and _____°

(32) 48 has how many positive integral divisors? _____

(33) If the mean of 14, 27, and x is 27, then x = _____

(34) What is the largest 2-digit number when divided by 6 or 9 has a remainder of 5? _____

(35) The sum of the distinct prime divisors of 216 is _____

(36) If $1 + 3 + 5 + \ldots + k = 43^2$, k = _____

(37) How many positive perfect cubes are less than 3000? _____

(38) $210\frac{3}{16} = 14\frac{3}{4} \times$ _____ (mixed number)

(39) $23 \times 99 =$ _____

***(40)** $\sqrt{9876543} =$ _____

(41) $14 \times 3\frac{1}{7} =$ _____

(42) If x = 3 and y = 6, then $25x^2 + 10xy + y^2 =$ _____

(43) $12^3 =$ _____

(44) $\sqrt{45796}$ = _____

(45) If $f(x) = 2x^2 - 3$, then $f(7)$ = _____

(46) A set with 5 elements has how many 4-element subsets? _____

(47) $83^2 - 38^2 = 11 \times$ _____

(48) $93^2 + 21^2$ = _____

(49) 325_{11} = _____ 10

***(50)** The volume of a rectangular prism of edges 14, 18, and 22 is _____

(51) The 7th pentagonal number is _____

(52) $19 \times \frac{17}{21}$ = _____ (mixed number)

(53) The sum of the 9th and 10th triangular numbers is _____

(54) $f(x) = mx + 13$ and $f(31) - f(11) = 140$. m = _____

(55) The endpoints of the diameter of a circle are (4, 13) and (10, 5) then the radius is _____

(56) If x, 11, y forms a geometric sequence, xy = _____

(57) 23 quarters + 7 nickels = _____ nickels

(58) The line $2x + 3y = 18$ has x-intercept $(a, 0)$ and y-intercept $(0, b)$, then $a + b$ = _____

(59) $3^{10} \div 11$ has a remainder of _____

***(60)** The length of the inner diagonal of a cube with edge 600 is _____

(61) $1_7 + 2_7 + 3_7 + \ldots + 25_7$ = _____ 10

(62) The median of a trapezoid with area 185 and height 5 is _____

(63) $(14_6)^2$ = _____ 6

(64) If $\frac{p}{q} + \frac{q}{p} = 2\frac{16}{21}$, where p and q are relatively prime, then $p + q$ = _____

(65) The measure of an exterior angle of a regular 18-sided polygon is _____°

(66) $\frac{11!}{10!} + \frac{10!}{11!}$ = _____ (mixed number)

(67) The number of integral solutions of $|x - 13| \leq 10.5$ is _____

(68) $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32}$ = _____ (fraction)

(69) $8x^2 - 26x + 11 = (px - q)(rx - s)$. $pqrs$ = _____

***(70)** $93 \times 94 \times 95$ = _____

(71) 43×1111 = _____

(72) The line $3x - 4y + C = 0$ contains (4, 8). C = _____

(73) $f(x) = x^3 - 4x^2 + 2x + 5$. $f(4)$ = _____

(74) Find the area of a rhombus with a side of $10\sqrt{3}$ and one angle of 30°. _____

(75) Find the number of real roots of $3x^2 - 5x + 7 = 0$ is _____

(76) 905^2 = _____

(77) $5^{x+3} = 120$. $5^{x+1} = \frac{p}{q}$, where $\frac{p}{q}$ is an irreducible fraction $p + q$ = _____

(78) $f(5x + 3) = 14x + 3$. $f(38)$ = _____

(79) $f(x) = x^3 + bx^2 + cx + d$ has factors $(x - 3)$, $(x - 5)$ and $(x - 6)$. d = _____

***(80)** $7.9 \times 81 \times 499$ = _____

2018-2019 TMSCA Middle School Number Sense Key #7

(1) 395

(2) 259

(3) 61411

(4) 351

(5) $\frac{13}{75}$

(6) 0

(7) $\frac{33}{50}$

(8) 100

(9) $14\frac{2}{7}$

***(10) 1854 – 2048**

(11) 4700

(12) 12084

(13) 5609

(14) 1591

(15) 336

(16) $\frac{19}{28}$

(17) 8835

(18) 1860

(19) 2442

***(20) 114949 – 127048**

(21) 2890

(22) 49

(23) 6

(24) 3

(25) 4

(26) 13

(27) $6\frac{3}{7}$

(28) 529

(29) 2560

***(30) 780 –861**

(31) 75

(32) 10

(33) 40

(34) 95

(35) 5

(36) 85

(37) 14

(38) $14\frac{1}{4}$

(39) 2277

***(40) 2986 – 3299**

(41) 44

(42) 441

(43) 1728

(44) 214

(45) 95

(46) 5

(47) 495

(48) 9090

(49) 390

***(50) 5267 – 5821**

(51) 70

(52) $15\frac{8}{21}$

(53) 100

(54) 7

(55) 5

(56) 121

(57) 122

(58) 15

(59) 1

***(60) 988 – 1091**

(61) 190

(62) 37

(63) 244

(64) 10

(65) 20

(66) $11\frac{1}{11}$

(67) 21

(68) $\frac{31}{32}$

(69) 88

***(70) 788966 – 872014**

(71) 47773

(72) 20

(73) 13

(74) 150

(75) 0

(76) 819025

(77) 29

(78) 101

(79) -90

***(80) 303345 – 335275**