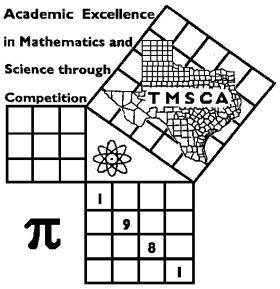
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

PLACE LABEL BELOW

Name:_____ School:_____

SS/ID Number:_____ City:_____

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



TMSCA MIDDLE SCHOOL NUMBER SENSE STATE TEST ©

APRIL 22, 2017

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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2016-2017 TMSCA Middle School Number Sense State Test

(1) $1147 - 2017 =$ _____

(2) $48 \times 8 =$ _____

(3) $963 \div 9 =$ _____

(4) $98 \times 11 =$ _____

(5) 6.5 feet = _____ inches

(6) $2017 \div 11$ has a remainder of _____

(7) $\frac{7}{8} - \frac{3}{4} =$ _____ (fraction)

(8) $14 \times 3 \div 7 - 4 \times 2 =$ _____

(9) $\frac{17}{3} \times 51 =$ _____

***(10)** $2016 + 2017 + 2018 + 3974 =$ _____

(11) $35 \times 42 =$ _____

(12) $1 - \left(\frac{4}{7} + \frac{3}{14}\right) =$ _____ (fraction)

(13) $37.5 \times 80 =$ _____

(14) $94 \times 93 =$ _____

(15) $86 \times 26 =$ _____

(16) $8300 = 83 \times 47 + 83 \times 37 + 83 \times$ _____

(17) $45^2 =$ _____

(18) $9\frac{1}{4}\% =$ _____ (fraction)

(19) $4900 = 64 \times 76 +$ _____

***(20)** $334 \times 870 =$ _____

(21) $0.969696\ldots =$ _____ (fraction)

(22) The LCM of 18 and 42 is _____

(23) 25 gallons = _____ ounces

(24) $\frac{12!}{9!} =$ _____

(25) The sum of the smallest 103 positive even integers is _____

(26) $24 \times 5\frac{1}{3} =$ _____

(27) $\frac{8}{13} + \frac{13}{8} =$ _____ (mixed number)

(28) The sum of the distinct prime divisors of 80 is ___

(29) $487 \times 111 =$ _____

***(30)** $32571 \div 64.9 =$ _____

(31) 88 has how many positive integral divisors? _____

(32) $16^2 + 48^2 =$ _____

(33) Find the area of a triangle with sides of 25, 7, and 24. _____

(34) $13 \times \frac{4}{7} =$ _____ (mixed number)

(35) By how much does the sum of the smallest 19 positive odd integers exceed the sum of the smallest 11 positive odd integers? _____

(36) If $2x + 5 = 16$, then $14(5 + 2x) =$ _____

(37) If one angle of a parallelogram is $108°$, then the sum of the two smallest angles is _____ °

(38) 45 base 9 is _____ base 10

(39) If $f(x) = 9x^2 + 6x + 1$, and $f(100) = k^2$, with $k > 0$, then $k =$ _____

***(40)** $21^3 =$ _____

(41) The area of a square with diagonal $4\sqrt{5} =$ _____

(42) If $4 + 8 + 12 + \ldots + 48 = 12k$, then $k =$ _____

(43) The number of subsets with either 2 elements or 4-elements in the set {a,r,g,y,l,e} is _____

(44) The number of sides of a regular polygon with interior angle $160°$ is _____

(45) $\sqrt{8836}$ = _____

(46) $47^2 + 66^2$ = _____

(47) Find the 7^{th} pentagonal number. _____

(48) A trapezoid has height 12, one base of 18, and an area of 144. How long is the other base? _____

(49) $\frac{1}{7}+\frac{2}{7}+\frac{3}{7}+\frac{4}{7}+...+\frac{13}{7}$ = _____

*(50) The number of distinct diagonals in a regular polygon of 100 sides is_____

(51) $7\frac{2}{3} \times 8\frac{2}{3}$ = _____(mixed number)

(52) $24 \times \frac{21}{19}$ =_____(mixed number)

(53) How many terms are in the arithmetic sequence 4, 11, 18, …, 109? _____

(54) The area of an equilateral triangle with side 18 is $k\sqrt{3}$, k =_____

(55) If 8! + 10! = k(8!), then k = _____

(56) If f(x) = 12x + 13, then f(82) – f(7) =_____

(57) $1_9 + 2_9 + 3_9 + 4_9 + \ldots + 12_9$ = _____$_9$

(58) $\left(1^4 + 2^4 + 3^4 + 4^4\right) \div 5$ has a remainder of_____

(59) The sum of the solutions of $|2x-3|=7$ is _____

*(60) $98 \times 94 \times 93$ = _____

(61) 0.86666… = _____ (fraction)

(62) The sum of the infinite geometric series, 8 + 6 + 4.5 + … = _____

(63) If $3^2 + 6^2 + 9^2 + 18^2 = 3^2 \times k$, then k = _____

(64) $\left(43_8\right)^2$ =_____$_8$

(65) 97×109 = _____

(66) How many integer solutions does $-3 \le 2x-1 \le 39$ have? _____

(67) How many positive integers less than 35 are relatively prime to 35?_____

(68) If P and Q are roots of $3x^2-7x+14=0$, then PQ + P + Q =_____

(69) If f(x) = 3x – 5 has x-intercept (a,0) and y-intercept (0, b), then a + b =_____

*(70) $\sqrt{823} \times \sqrt{999}$ = _____

(71) The geometric mean of 5^7, 5^{11} and 5^{18} is 5^x, x =___

(72) The sum of the coefficients of $(2x + b)^4$ is 16. Find the smaller possible value of b. _____

(73) Find the probability of choosing a divisor of 10 from the smallest 10 natural numbers. ____

(74) 805^2 =_____

(75) $f(x) = 2x^2 - 24x + 7$ and g(x – 3), then g(x) has an axis of symmetry of x =_____

(76) If $f(x) = ax^2 + 12x + 4$ has one distinct real root, then a =_____

(77) The sum of the integral values of $|x-4| \le 7$ is ___

(78) $\sqrt[3]{\frac{343}{729}}$ = _____(fraction)

(79) If $824^2 = 678976$, then 808×840 =_____

*(80) The surface area of a sphere with radius 9 is _____

2016-2017 TMSCA Middle School State Number Sense Key

(1) – 870

(2) 384

(3) 107

(4) 1078

(5) 78

(6) 4

(7) $\frac{1}{8}$

(8) – 2

(9) 289

***(10) 9524 – 10526**

(11) 1470

(12) $\frac{3}{14}$

(13) 3000

(14) 8742

(15) 2236

(16) 16

(17) 2025

(18) $\frac{37}{400}$

(19) 36

***(20) 276051 – 305109**

(21) $\frac{32}{33}$

(22) 126

(23) 3200

(24) 1320

(25) 10712

(26) 128

(27) $2\frac{25}{104}$

(28) 7

(29) 54057

***(30) 477 – 526**

(31) 8

(32) 2560

(33) 84

(34) $7\frac{3}{7}$

(35) 240

(36) 224

(37) 144

(38) 41

(39) 301

***(40) 8798 – 9724**

(41) 40

(42) 26

(43) 30

(44) 18

(45) 94

(46) 6565

(47) 70

(48) 6

(49) 13

***(50) 4608 – 5092**

(51) $66\frac{4}{9}$

(52) $26\frac{10}{19}$

(53) 16

(54) 81

(55) 91

(56) 900

(57) 73

(58) 4

(59) 3

***(60) 813881 – 899551**

(61) $\frac{13}{15}$

(62) 32

(63) 50

(64) 2311

(65) 10573

(66) 22

(67) 24

(68) 7

(69) $-\frac{10}{3}$ or $-3\frac{1}{3}$

***(70) 862 – 952**

(71) 12

(72) – 4

(73) $\frac{2}{5}$ or .4

(74) 648025

(75) 9

(76) 9

(77) 60

(78) $\frac{7}{9}$

(79) 678720

***(80) 967 – 1068**