1st Score:	2nd Score:	3rd Score:	-							
Grader:	Grader:	Grader:	_	Final Score						
PLACE LABEL BELOW										
Name:		School:								
SS/ID Number:		City:								
Grade: 5 6 7	8 Cla	ssification: 1A 2A	3A	4A	5A	6A				

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TMSCA MIDDLE SCHOOL NUMBER SENSE STATE TEST © APRIL 21, 2018

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 <u>non-black</u> 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 <u>FIVE</u> points. <u>FOUR</u> points will be deducted for all problems answered incorrectly or skipped before the last problem attempted.

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2017-2018 TMSCA Middle School Number Sense State Test

- (1) 2013 + 2018 + 2023 =_____
- (2) **0.56** = _____ (fraction)
- (3) 11×78 =_____
- (4) 148 × 25 = _____
- $(5) 93 \times 9 =$
- (6) $\frac{11}{14} \frac{4}{7} =$ _______(fraction)
- (7) 495628 ÷ 7 =_____
- $(8) \ \ 3\frac{2}{5} \times \ 20 = \underline{\hspace{1cm}}$
- (9) 478321 ÷ 9 has a remainder of _____
- *(10) 1423 1687 + 2345 = _____
- (11) $18\frac{3}{4}\% =$ (fraction)
- (12) 12 × 83 = _____
- (13) 86 × 26 =_____
- (14) $76 \times 84 =$
- (15) 104 × 115 = _____
- $(16) 72 \times 16\frac{2}{3} = \underline{\hspace{1cm}}$
- (17) 97² =_____
- (18) 990 × 0.333... =____
- (19) 1+3+5+...+69=_____
- *(20) 626 × 479 = _____
- (21) 29 gallons = _____quarts
- (22) 2018 ÷ 6 = _____(mixed number)

- (23) What is the smallest 2-digit number which has a remainder of 1 when divided by 12 and 18?____
- (24) How many 2-digit numbers are divisible by 5? ___
- (25) 939 × 111 = _____
- $(26) 16^2 + 48^2 =$
- (27) The sum of the distinct prime divisors of 90 is____
- (28) How many integers between 200 and 900 are the square of an integer? _____
- (29) The largest prime divisor of 245 is_____
- *(30) $570^2 \div 5^2 =$
- (31) 66 has how many positive integral divisors?_____
- $(32) \left(\frac{4}{7}\right)^3 = \underline{\qquad} (fraction)$
- (33) $9\frac{2}{5} \times 9\frac{3}{5} =$ (mixed number)
- $(34) \quad 9025 = 92 \times 98 + \underline{\hspace{1cm}}$
- (35) $(7^2 + 3 \times 4 + 11 \times 5) \div 6$ has a remainder of ____
- (36) $\frac{4}{9} + \frac{9}{4} =$ (mixed number)
- (37) $5\frac{5}{7} \times 6\frac{2}{7} =$ (mixed number)
- (38) Find the area of a trapezoid with bases of 17 and 27 with a height of 18. _____
- (39) How many fractions between $\frac{1}{3}$ and 1 have a denominator of 9 with an integer numerator?____
- *(40) 268 gallons = _____ cubic inches
- (41) 97 × 109 = ____
- (42) The area of a square with diagonal $7\sqrt{10}$ is_____

- (43) 75 (base 11) =_____ (base 10)
- (44) 231 (base 4) = (base 2)
- (45) The measure of the exterior angle of an 18-sided polygon. _____ °
- $(46) \sqrt{16129} = \underline{\hspace{1cm}}$
- (47) How many 3-element subsets does a 9-element set have? _____
- (48) Find the 11th pentagonal number.
- (49) If $f(x) = 9x^2 + 24x + 16$, then f(6) =
- *(50) $\sqrt{731524} =$
- (52) $19 \times \frac{23}{24} =$ ______(mixed number)
- (53) 1014 × 1016 = _____
- (54) $25\frac{1}{12} \times 11\frac{1}{12} =$ (mixed number)
- (55) If $3^{5x+2} = 9^6$, then x =_____
- (56) 8 + 13 + 18 + ... + 58 =
- $(57) \ \frac{9!+8!}{7!} = \underline{\hspace{1cm}}$
- (58) If f(x) = 8x + 17 and f(p) f(q) = 176, then p q =_____
- (59) The sum of the solutions of |3x 25| = 15 is_____
- *(60) 103 × 106 × 109 =_____
- $(61) \left(42_{6}\right)^{2} = \underline{\hspace{1cm}}_{6}$
- (62) The area of an equilateral triangle with side $4\sqrt{2}$ is $k\sqrt{3}$, k =______

- (63) If $f(x) = x^2 + 6x 11$, then f(21) f(11) =
- (64) If (3, 2) is on y + 4 = m(x 7), then m =
- (65) 0.545454...= _____(fraction)
- (66) Find the sum of the integer solutions of $1 \le 2x \le 21$.
- (67) The axis of symmetry of f(x) = (3x 5)(x 4) is x =_____
- (68) The discriminant of $(3x 4)^2 = 0$ is _____
- (69) The number of triangles which can be drawn from a given vertex of a decagon is_____
- *(70) The number of distinct diagonals of a regular 75-sided polygon is______
- (71) The geometric mean of 4^7 , 4^9 and 4^{23} is 4^x , $x = ____$
- (72) Find the x^2 coefficient of $(3x^2 + x + 4)(x^2 3x + 2)$.
- (73) If $\frac{9!}{5!} + 1 = k^2$ and k > 0, then k =_____
- (74) If the roots of $f(x) = x^2 + bx + c$ are 3 and 8, then c =_____
- (75) P, Q, and R are roots of $f(x) = 7x^3 + bx + 14x + d$. If PQR + P + Q + R = -5, then b + d =
- (76) The first 4 decimal places of $\frac{37}{90}$ is 0._____
- (77) Find the sum of the infinite geometric sequence: $10+10\times\left(\frac{2}{3}\right)^2+10\times\left(\frac{2}{3}\right)^4+...=$
- (78) Find the probability of choosing a divisor of 24 from the smallest 24 positive integers._____
- (79) If 5x + By = C has an x-intercept of 9
 and a y-intercept of 15, then B = _____
- *(80) 55.5% of (540 × 285) is _____

2017-2018 TMSCA Middle School Number Sense State Key

(1) 6054

(2) $\frac{14}{25}$

(23) 37

(3) 858

(4) 3700

(5) 837

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

(7) 70804

(8) 68

(9) 7

*(10) 1977 - 2185

(11) $\frac{3}{16}$

(12) 996

(13) 2236

(14) 6384

(15) 11960

(16) 1200

(17) 9409

(18) 330

(19) 1225

*(20) 284862 - 314846

(21) 116

(22) $336\frac{1}{3}$

(24) 18

(25) 104229

(26) 2560

(27) 10

(28) 15

(29) 7

*(30) 12347 - 13645

(31) 8

 $(32) \frac{64}{343}$

(33) $90\frac{6}{25}$

(34) 9

(35) 2

 $(36) \ 2\frac{25}{36}$

 $(37) \ 35\frac{45}{49}$

(38) 396

(39) 5

*(40) 58813 – 65003

(41) 10573

(42) 245

(43) 82

(45) 20

(46) 127

(44) 101101

(63) 380

(64) $-1.5, -1\frac{1}{2}, \text{ or } -\frac{3}{2}$

 $(65) \frac{6}{11}$

(66) 55

(47) 84

(48) 176

(49) 484

*(50) 813 - 898

(51) 255

 $(52) 18\frac{5}{24}$

(53) 1030224

 $(54) \ \ 278 \frac{1}{144}$

(55) 2

(56) 363

(57) 80

(58) 22

(59) $16\frac{2}{3}$ or $\frac{50}{3}$

*(60) 1130559 – 1249565

(61) 3044

(62) 8

(67) $\frac{17}{6}$ or $2\frac{5}{6}$

(68) 0

(69) 36

*(70) 2565 -2835

(72) 7

(71) 13

(73) 55

(74) 24

(75) 35

(76) 4111

(77) 18

 $(78) \frac{1}{3}$

(79) 3

*(80) 81144 - 89685