PLACE LABEL BELOW

Name: _____ School: _____

SS/ID Number: _____ City: _____

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

T M S C A   M I D D L E   S C H O O L

N U M B E R   S E N S E

T E S T   # 9 ©

J A N U A R Y   2 7 ,   2 0 1 8

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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2017-2018 TMSCA Middle School Number Sense Test 9

(1) $566 + 234 =$ _____

(2) $49 \times 8 =$ _____

(3) $7245 \div 9 =$ _____

(4) $73 \times 11 =$ _____

(5) $14 \times 2.1 =$ _____ (decimal)

(6) $984371 \div 9$ has a remainder of _____

(7) $\dfrac{1+3+5}{5+7} =$ _____(fraction)

(8) $22^2 =$ _____

(9) $6\dfrac{1}{4}\% =$ _____ (fraction)

*(10) $2018 + 3049 - 671 =$ _____

(11) Which of the following is greater 0.7 or $\dfrac{5}{7}$? _____

(12) $78 \times 82 =$ _____

(13) $27 \times 33\dfrac{1}{3} =$ _____

(14) The mean of 1, 16, 25, 9, 4 is_____

(15) $85^2 =$ _____

(16) $1 + 2 + 3 + \ldots + 40 =$ _____

(17) $98 \times 94 =$ _____

(18) $17 \times 43 + 17 \times 19 - 17 \times 12 =$ _____

(19) $65 \times 75 =$ _____

*(20) $444 \times 241 + 444 \times 119 =$ _____

(21) $4\dfrac{1}{3} \times 12 =$ _____

(22) $104 \times 108 =$ _____

(23) $7^3 =$ _____

(24) The LCM of 18 and 24 is_____

(25) $78 \times 111 =$ _____

(26) $1400 = 14 \times 87 + 14 \times$ _____

(27) $483215 \div 11$ has a remainder of_____

(28) The area of a rectangle
with width 14 and length 25. _____

(29) How many odd integers
are between 14 and 85?_____

*(30) $\sqrt{325141} =$ _____

(31) Find the perimeter
of a right triangle with legs 5 and 12._____

(32) 52 has how many distinct prime divisors? _____

(33) 10.5 gallons = _____ quarts

(34) $85^2 + 42^2 =$ _____

(35) What is the total cost of a $12
item with a sales tax rate of 6% ? $ _____

(36) If the area of a rectangle with twice as large
a length as width is 98, then the length is _____

(37) $29 \div 5 - 3 + 31 \div 5 =$ _____

(38) $16\dfrac{2}{3} \times 240 =$ _____

(39) $\sqrt{9409} =$ _____

*(40) $2018 \times 999 \times 3 =$ _____

(41) The measure of an
exterior angle in a regular nonagon is _____°

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

(43) The area of a square with diagonal $3\sqrt{10}$ is_____

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(44) If $f(x) = x^2 + 7$, find $f(14)$. _____

(45) If $2x + 4 = 16$, then $(2x + 4)(2x + 8) =$ _____

(46) The sum of the solutions of $|3x - 5| = 11$ is _____

(47) A regular nonagon
with side length 14 has a perimeter of _____

(48) How many distinct diagonals
can be drawn inside an undecagon? _____

(49) $46_{10} =$ _____$_5$

*(50) $\sqrt{333 \times 749} =$ _____

(51) $\dfrac{8! + 7!}{5 \times 7!} =$ _____ (mixed number)

(52) $15 \times \dfrac{17}{19} =$ _____ (mixed number)

(53) A set with 9 elements has
how many 3-element subsets? _____

(54) If $2^{x+3} = 40$, then $2^x =$ _____

(55) $1 + 7 + 13 + 19 + \ldots + 55 =$ _____

(56) If $f(x^2) = 8x + 3$ and $x > 0$, then $f(16) =$ _____

(57) $2\sqrt{5} \times 3\sqrt{5} =$ _____

(58) $\left(11^2 + 12^2 + 13^2\right) \div 5$ has a remainder of _____

(59) $314_6 - 133_6 =$ _____ $_6$

*(60) $165 \times 279 \div 3 =$ _____

(61) The number of positive integer
solutions of $17 < x^2 < 67$ is _____

(62) $(41_6)^2 =$ _____ $_6$

(63) The first 4 digits of $\dfrac{17}{90}$ is 0. _____

(64) How many triangles can be drawn
using any three vertices of a hexagon? _____

(65) How many triangles can be drawn
from a given vertex of a hexagon? _____

(66) $1_9 + 3_9 + 5_9 + 7_9 + 10_9 + 12_9 =$ _____ $_9$

(67) $0.8444\ldots =$ _____(fraction)

(68) The sum of the coefficients of $(4x - 6)^3$ is _____

(69) If $\dfrac{a}{b} + \dfrac{b}{a} = 2\dfrac{25}{66}$, and a and b
are relatively prime and $a > b$, then $a =$ _____

*(70) The volume of a right circular
cylinder with radius 6 and height 40 is _____

(71) If $x^2 + 9x - 22 = (x - p)(x - q)$,
then $pq + p + q =$ _____

(72) The sum of the
integral solutions of $|x - 5| \le 6$ is _____

(73) $42 \times 37 =$ _____

(74) The number of ways to arrange
6 people in 3 chairs in a line is _____

(75) The probability of rolling a
sum of 6 with two 4-sided die is _____

(76) Find the probability of rolling a sum
of 6, 7, or 8 when rolling a pair of dice. _____

(77) $\dfrac{(n+5)!}{(n+1)!}$ is a polynomial of degree _____

(78) If $\sqrt[4]{4x+1} = 3$, then $x =$ _____

(79) P, Q, and R are
roots of $8x^3 - 5x + 4 = 0$. $P + Q + R =$ _____

*(80) $18 \times 20 \times 22 \times 24 =$ _____

2017-2018 TMSCA Middle School Number Sense Key #9

(1) 800

(2) 392

(3) 805

(4) 803

(5) 29.4

(6) 5

(7) $\frac{3}{4}$

(8) 484

(9) $\frac{1}{16}$

*(10) 4177 – 4615

(11) $\frac{5}{7}$

(12) 6396

(13) 900

(14) 11

(15) 7225

(16) 820

(17) 9212

(18) 850

(19) 4875

*(20) 151848 – 167832

(21) 52

(22) 11232

(23) 343

(24) 72

(25) 8658

(26) 13

(27) 7

(28) 350

(29) 35

*(30) 542 – 598

(31) 30

(32) 2

(33) 42

(34) 8989

(35) 12.72

(36) 14

(37) 9

(38) 4000

(39) 97

*(40) 5745549 – 6350343

(41) 40

(42) 71

(43) 45

(44) 203

(45) 320

(46) $3\frac{1}{3}$ or $\frac{10}{3}$

(47) 126

(48) 44

(49) 141

*(50) 475 – 524

(51) $1\frac{4}{5}$

(52) $13\frac{8}{19}$

(53) 84

(54) 5

(55) 280

(56) 35

(57) 30

(58) 4

(59) 141

*(60) 14578 – 16112

(61) 4

(62) 2521

(63) 1888

(64) 20

(65) 10

(66) 40

(67) $\frac{38}{45}$

(68) – 8

(69) 11

*(70) 4298 – 4750

(71) – 31

(72) 65

(73) 1554

(74) 120

(75) $\frac{3}{16}$ or .1875

(76) $\frac{4}{9}$

(77) 4

(78) 20

(79) $\frac{5}{8}$ or .625

*(80) 180576 – 199584