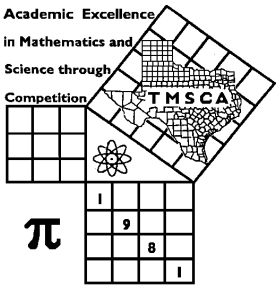
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 #1©

OCTOBER 20, 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 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 #1

(1) $964 \div 4 =$ _____

(2) $27 \times 6 =$ _____

(3) $\frac{4}{11} =$ _____% (mixed number)

(4) $2017 + 2018 + 2019 + 2020 + 2021 =$_____

(5) $4 \times 5 \times 6 \div 2 =$_____

(6) $0.65 =$_____ (fraction)

(7) $27348 \div 9$ has a remainder of _____

(8) $15 \times 32 =$ _____

(9) $\frac{3}{7} \times 490 =$ _____

***(10)** $1927 + 2019 - 834 =$ _____

(11) Which of the following is greater, 0.39 or $\frac{2}{5}$?____

(12) $3300 = 29 \times 33 + 67 \times 33 + 33 \times$_____

(13) $7^3 =$_____

(14) $17^2 =$_____

(15) $109 \times 25 =$_____

(16) $109 \times 50 =$ _____

(17) $48 \times 12\frac{1}{2} =$_____

(18) $95^2 =$_____

(19) How many digits are in 352^2 ? _____

***(20)** $72 \times 88.888\text{K} =$_____

(21) $2.3^2 =$_____ (decimal)

(22) $37 \times 63 =$ _____

(23) 12 gallons = _____quarts

(24) Find the number of composite numbers between 14 and 24. _____

(25) $93 \times 96 =$ _____

(26) $104 \times 109 =$_____

(27) The GCD of 15 and 35 is _____

(28) The LCM of 35 and 75 is_____

(29) $23 \div 3 + 5 + 19 \div 3 =$_____

***(30)** $423 \times 379 =$ _____

(31) How many fractions between 0.2 and 1 have a denominator of 20 with an integer numerator? _____

(32) $24\frac{3}{5} \times 24\frac{2}{5} =$_____ (mixed number)

(33) $4 + 6 + \ldots + 26 =$_____

(34) 3 gallons = _____cubic inches

(35) Find the area of a rhombus with diagonals 12 and 15._____

(36) The sum of the positive integral divisors of 40 is _____

(37) The product of 29 and its twin prime is_____

(38) 39 base 12 is equivalent to _____in base 10

(39) $95^2 + 285^2 =$_____

***(40)** $\sqrt{83142} =$ _____

(41) 23% of 57 is 69% of_____

(42) A set with 9 elements has _____subsets

(43) $11^3 =$_____

(44) The area of a square with diagonal 14 is_____

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(45) $2\frac{3}{4} + \frac{4}{3}$ = _____ (mixed number)

(46) The sum of the measures of the interior angles of an undecagon is _____°

(47) If $f(x) = \sqrt{9x+7}$, and $f(k) = 2$, then k = _____

(48) A regular octagon has an exterior angle of measure _____°

(49) A square of area 256 has a perimeter of _____

*(50) $13^3 \times 18$ = _____

(51) The set {f,o,u,r,s,q,a,e} has how many subsets with 6 elements? _____

(52) $18 \times \frac{19}{23}$ = _____ (mixed number)

(53) f(x) = 3x + 14, and f(p) – f(q) = 150. p – q = _____

(54) Let $f(x) = x^2$, then f(34) – f(23) = _____

(55) $83^2 + 22^2$ = _____

(56) $53_8 + 47_8$ = _____$_8$

(57) The harmonic mean of 6 and 12 is _____

(58) $(4^4 + 7^4) \div 5$ has a remainder of _____

(59) If x(x – 3) < 100, then the largest integral value of x is _____

*(60) The 50th pentagonal number is _____

(61) $8^2 \div 4^2 \times 2^2$ = _____

(62) $\sqrt{90\frac{1}{4}}$ = _____ (mixed number)

(63) $4\sqrt{6} \times 7\sqrt{6}$ = _____

(64) 0.5333… = _____ (fraction)

(65) How many distinct triangles can be drawn from any vertex of a heptagon? _____

(66) Find the slope of the line y – 3 = m(x – 4) if it passes through (8, 4). _____

(67) $(1+3+5+...+33)-(1+3+5+...+29) = x^2$, and x > 0, then x = _____

(68) The sum of the infinite geometric series $3 + 1 + \frac{1}{3} + \ldots$ = _____

(69) How many positive integers less than or equal to 50 are relatively prime to 50? _____

*(70) The volume of a tetrahedron with an edge of 12 is _____

(71) If P and Q are roots of $3x^2 - 10x + 14 = 0$, and PQ + P + Q = _____

(72) If $f(x) = 2x^2 + 4x + 3$, then f(x – 5) has an axis of symmetry of x = _____

(73) Find the probability of rolling a sum of 11 or 12 when rolling two 6-sided die. _____

(74) $\frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30}$ = _____ (fraction)

(75) $\frac{5! + 7!}{7!}$ = _____ (mixed number)

(76) The sum of the coefficients of $(5x + b)^5$ is 243, find the value of b. _____

(77) $5x^2 + 4x - 3 = 0$ has _____ real roots

(78) 44 feet per second = _____ miles per hour

(79) $18^{2x} = 225$, then 18^{x+1} = _____

*(80) Find the volume of a right circular cylinder with radius 12 and height 7. _____

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2018-2019 TMSCA Middle School Number Sense Key #1

(1) 241

(2) 162

(3) $36\frac{4}{11}$

(4) 10095

(5) 60

(6) $\frac{13}{20}$

(7) 6

(8) 480

(9) 210

***(10) 2957 – 3267**

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

(12) 4

(13) 343

(14) 289

(15) 2725

(16) 5450

(17) 600

(18) 9025

(19) 6

***(20) 6080 – 6720**

(21) 5.29

(22) 2331

(23) 48

(24) 6

(25) 8928

(26) 11336

(27) 5

(28) 525

(29) 19

***(30) 152302 – 168332**

(31) 15

(32) $600\frac{6}{25}$

(33) 180

(34) 693

(35) 90

(36) 90

(37) 899

(38) 45

(39) 90250

***(40) 274 – 302**

(41) 19

(42) 512

(43) 1331

(44) 98

(45) $4\frac{1}{12}$

(46) 1620

(47) $-\frac{1}{3}$

(48) 45

(49) 64

***(50) 37569 – 41523**

(51) 28

(52) $14\frac{20}{23}$

(53) 50

(54) 627

(55) 7373

(56) 122

(57) 8

(58) 2

(59) 11

***(60) 3539 – 3911**

(61) 16

(62) $9\frac{1}{2}$

(63) 168

(64) $\frac{8}{15}$

(65) 35

(66) .25 or $\frac{1}{4}$

(67) 8

(68) 4.5, $4\frac{1}{2}$**,** $\frac{9}{2}$

(69) 20

***(70) 194 – 213**

(71) 8

(72) 4

(73) $\frac{1}{12}$

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

(75) $1\frac{1}{42}$

(76) – 2

(77) 2

(78) 30

(79) 270

***(80) 3009 – 3325**

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