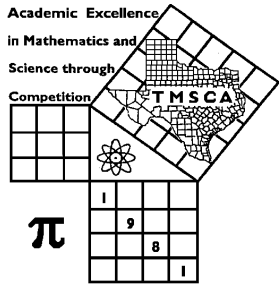


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____ School: _____			
SS/ID Number: _____ City: _____			
Grade: 4 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A			



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
TEST # 2 ©
OCTOBER 27, 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.

2018 – 2019 TMSCA Middle School Number Sense Test #2

(1) $2019 \div 3 =$ _____

(2) $8 \times 69 =$ _____

(3) $856 \div 8 =$ _____

(4) $23 \times 14 =$ _____

(5) $3 + 6 + 9 + 12 + 15 + 18 + 21 =$ _____

(6) $0.0025 =$ _____ (fraction)

(7) $27348 \div 5$ has a remainder of _____

(8) $28^2 =$ _____

(9) $11 \times 12 + 11 \times 13 =$ _____

*(10) $387 - 2019 + 8324 =$ _____

(11) $75 \times 24 =$ _____

(12) $94 \times 106 =$ _____

(13) $47 \times 67 =$ _____

(14) $\frac{1+3+5+7+9+11+13+15+17}{3} =$ _____

(15) $47 \times 43 =$ _____

(16) The mean of 4, 16, and 64 is _____

(17) $78 \times 33 \frac{1}{3} =$ _____

(18) $14 \times 3 \frac{4}{7} =$ _____

(19) $5625 = 71 \times 79 +$ _____

*(20) $729 \times 444.444 \dots =$ _____

(21) $36 \times 4.4 =$ _____ (decimal)

(22) $37 \times 123 =$ _____

(23) 96 inches = _____ feet

(24) The LCM of 103 and 104 is _____

(25) The multiplicative inverse of $\frac{5}{9}$ is _____ (decimal)

(26) The cube root of $\frac{64}{27}$ is _____ (mixed number)

(27) $\frac{7}{4} + \frac{4}{7} =$ _____ (mixed number)

(28) The area of a square with side 8.5 is _____

(29) $38582 \div 101 =$ _____

*(30) 77.777% of 3591 = _____

(31) How many fractions between 0.5 and 1.5 have a denominator of 8 with an integer numerator? _____

(32) $43^2 + 26^2 =$ _____

(33) $21^2 + 63^2 =$ _____

(34) $8 \frac{2}{3} \times 9 \frac{1}{3} =$ _____ (mixed number)

(35) 75 has how many positive integral divisors? _____

(36) If $1 + 3 + 5 + \dots + k = 25^2$, then $k =$ _____

(37) The sum of the smallest 11 odd integers is _____

(38) 2019 has how many positive integral divisors? _____

(39) If $f(x) = 16x^2 - 8x + 1$,
and $f(22) = k^2$, with $k > 0$, then $k =$ _____

*(40) $2019 \times \sqrt{2019} =$ _____

(41) If $\frac{2x-13}{5} = 9$ then $x =$ _____

(42) $600 = 18 \times 33 + 18 \times$ _____

(43) $13^3 =$ _____

(44) $\sqrt{17424} =$ _____

(45) $19 \times \frac{2}{3} =$ _____ (mixed number)

(46) The set {s,l,o,t,b,a,c,k} has how many 7-element subsets? _____

(47) Find the slope of a line which passes through (4, 7) and (10, 19). _____

(48) The exterior angle of a regular 20-sided polygon is _____ °

(49) The perimeter of a regular hexagon with side 16 is the same as the perimeter of a regular octagon with side length _____

*(50) $6! \times 7!$
= _____

(51) The area of an equilateral triangle with side 14 is $k\sqrt{3}$, then $k =$ _____

(52) $21 \times \frac{17}{22} =$ _____ (mixed number)

(53) Let $f(x) = 12x + 23$, then $f(58) - f(40) =$ _____

(54) $\frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{42} =$ _____

(55) $53^2 - 37^2 =$ _____

(56) $1_8 + 2_8 + 3_8 + 4_8 + \dots + 10_8 =$ _____

(57) A cube with a volume of 27 has a surface area of _____

(58) Find the sum of the positive multiples of 11 that are less than 100. _____

(59) $95 \times 107 =$ _____

*(60) The length of the inner diagonal of a cube with edge 400 is _____

(61) $(2 + 4 + 6 + \dots + 38) + (2 + 4 + 6 + \dots + 40) =$ _____

(62) Find the smaller solution of $|2x - 3| = 7$. _____

(63) If a polygon of n sides has 170 distinct diagonals, then $n =$ _____

(64) $0.366666\dots =$ _____ (fraction)

(65) If the line $4x - 5y = C$ passes through the point (12,8), then $C =$ _____

(66) The number of triangles which can be drawn in a heptagon using any 3 vertices is _____

(67) The sum of the solutions of $|x - 18| = 10$ is _____

(68) $1 + 3 + 3^2 + 3^3 =$ _____

(69) How many positive integers less than or equal to 22 are relatively prime to 22? _____

*(70) $\sqrt{5382147} =$ _____

(71) If P and Q are roots of $x^2 + bx + c = 0$, $PQ = -4$ and $PQ = 12$, then $b + c =$ _____

(72) $f(x) = 2x^2 + 3x + 9$ has an axis of symmetry of $x =$ _____

(73) Find the probability of rolling a sum of 3 when rolling two 6-sided die. _____

(74) How many distinct six letter arrangements can be made from {e,l,e,c,t,s}? _____

(75) $14^2 + 98^2 =$ _____

(76) $608^2 =$ _____

(77) $245^2 =$ _____

(78) If $x^2 - 2xy + y^2 = 129$, $xy = 10$, and $x + y > 0$, then $x + y =$ _____

(79) The first 4 digits of the expansion of $\frac{19}{90}$ is 0. _____

*(80) 550 square miles = _____ acres

2018-2019 TMSCA Middle School Number Sense Key #2

- | | | | |
|-----------------------|----------------------|-------------------------|---------------------------|
| (1) 673 | (24) 10712 | (44) 132 | (62) - 2 |
| (2) 552 | (25) 1.8 | (45) $12\frac{2}{3}$ | (63) 20 |
| (3) 107 | (26) $1\frac{1}{3}$ | (46) 8 | (64) $\frac{11}{30}$ |
| (4) 322 | (27) $2\frac{9}{28}$ | (47) 2 | (65) 8 |
| (5) 84 | (28) 72.25 | (48) 18 | (66) 35 |
| (6) $\frac{1}{400}$ | (29) 382 | (49) 12 | (67) 36 |
| (7) 3 | *(30) 2654 - 2932 | *(50) 3447360 - 3810240 | (68) 40 |
| (8) 7.84 | (31) 7 | (51) 49 | (69) 10 |
| (9) 275 | (32) 2525 | (52) $16\frac{5}{22}$ | *(70) 2204 - 2435 |
| *(10) 6358 - 7026 | (33) 4410 | (53) 216 | (71) 16 |
| (11) 1800 | (34) $80\frac{8}{9}$ | (54) $\frac{4}{21}$ | (72) $-.75, -\frac{3}{4}$ |
| (12) 9964 | (35) 6 | (55) 1440 | (73) $\frac{1}{18}$ |
| (13) 3149 | (36) 49 | (56) 44 | (74) 360 |
| (14) 27 | (37) 121 | (57) 54 | (75) 9800 |
| (15) 2021 | (38) 4 | (58) 495 | (76) 369664 |
| (16) 28 | (39) 87 | (59) 10165 | (77) 60025 |
| (17) 2600 | *(40) 86185 - 95256 | (60) 659 - 727 | (78) 7 |
| (18) 50 | (41) 29 | (61) 800 | (79) 2111 |
| (19) 16 | (42) $\frac{1}{3}$ | | *(80) 334400 - 369600 |
| *(20) 307800 - 340200 | (43) 2197 | | |
| (21) 158.4 | | | |
| (22) 4551 | | | |
| (23) 8 | | | |