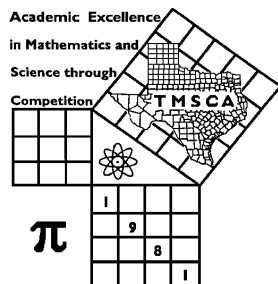


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____ School: _____			
SS/ID Number: _____ City: _____			
Grade: 4 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A			



TMSCA MIDDLE SCHOOL NUMBER SENSE

TEST #13 ©

FEBRUARY 23, 2019

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.

[illegible]

2018 – 2019 TMSCA Middle School Number Sense Test #13

- (1) $2019 + 2018 =$ _____
- (2) $372 - 124 =$ _____
- (3) $63 \times 7 =$ _____
- (4) $42 \times 50 =$ _____
- (5) $56 \times 25 =$ _____
- (6) $325 \div 25 =$ _____
- (7) $2314 \div 4$ has a remainder of _____
- (8) $2 \times 3 \times 4 \times 5 \div 6 =$ _____
- (9) $\frac{4}{9} \times 72 =$ _____
- *(10) $47 + 473 + 4732 =$ _____
- (11) $17 \times 41 + 63 \times 41 + 20 \times 41 =$ _____
- (12) $81 \times 12 =$ _____
- (13) $31^2 =$ _____
- (14) $92 \times 97 =$ _____
- (15) The mean of 14, 17 and _____ is 20
- (16) $115 \times 20 =$ _____
- (17) $108 \times 102 =$ _____
- (18) $24 \times 12\frac{1}{2} =$ _____
- (19) $37 \times 93 =$ _____
- *(20) $248 \times 124 =$ _____
- (21) $16 + 37 - 21 \div 3 - 6^2 =$ _____
- (22) $28 \times 88 =$ _____
- (23) $1 + 2 + 3 + 4 + \dots + 100 =$ _____
- (24) $53 \times 5.7 =$ _____ (decimal)
- (25) $54 \times 33\frac{1}{3} \times 18 =$ _____
- (26) The GCD of 18 and 66 is _____
- (27) The LCM of 18 and 66 is _____
- (28) The square root of $\frac{121}{16}$ is _____ (mixed number)
- (29) 51 inches = _____ feet(decimal)
- *(30) 2019 gallons = _____ cups
- (31) $35^2 =$ _____
- (32) $51393 \div 111 =$ _____
- (33) $\frac{4}{11} + \frac{11}{4} =$ _____ (mixed number)
- (34) The area of a rectangle with a length of 283 and width 101 is _____
- (35) $19^2 + 57^2 =$ _____
- (36) $19\frac{2}{7} \times 19\frac{5}{7} =$ _____ (mixed number)
- (37) How many prime numbers are between 40 and 50? _____
- (38) How many fractions between 0.4 and 0.9 have a denominator of 20 with an integer numerator? _____
- (39) 100 has _____ positive integral divisors
- *(40) $33\frac{1}{3}\%$ of $\frac{1}{2}$ of 27599 is _____
- (41) If $f(x) = 9x^2 - 12x + 4$ and $f(24) = k^2$, $k > 0$, then $k =$ _____
- (42) If $\frac{3x-4}{7} = 8$, then $x =$ _____
- (43) $213_7 =$ _____₁₀
- (44) $15^3 =$ _____

- (45) $\sqrt{9801} =$ _____
- (46) $93^2 - 17^2 =$ _____
- (47) $39^2 + 31^2 =$ _____
- (48) The 15th pentagonal number is equal to $15k$, $k =$ _____
- (49) The measure of the interior angle of a 36-sided polygon is _____°
- *(50) The area of a square with diagonal $450\sqrt{2}$ is _____
- (51) $67^2 + 64^2 =$ _____
- (52) If $f(3x + 2) = 4x + 5$, then $f(23) =$ _____
- (53) The sum of the solutions of $|3x - 4| = 19$ is _____
- (54) $11^{17} \div 17$ has a remainder of _____
- (55) How many terms are in the sequence 19, 27, 35, 43, ..., 139? _____
- (56) If $8^x = 125$, then $4^x =$ _____
- (57) If $x(x + 5) < 130$, then the largest integer solution is $x =$ _____
- (58) $234_6 - 52_6 =$ _____₆
- (59) The sum of the 8th and 9th triangular numbers is _____
- *(60) If three consecutive integers have a product of 274560, then the middle integer is _____
- (61) If $f(x)$ is a linear function of slope $-\frac{5}{3}$ and $f(4) = 27$, then $f(10) =$ _____
- (62) $(23_9)^2 =$ _____₉
- (63) $45 \times 85 =$ _____
- (64) $0.878787... = \frac{a}{b}$, where a and b have no common factors, then $a + b =$ _____
- (65) If $3x - 7y = 12$ is perpendicular to $35x + by = 100$, then $b =$ _____
- (66) If $7 \times 8 \times 9 \times 10 + 1 = k^2$, $k > 0$, then $k =$ _____
- (67) If the inner diagonal of a cube is $7\sqrt{3}$, the volume is _____
- (68) The discriminant of $4x^2 - 7x - 1 = 0$ is _____
- (69) $\sqrt{39^2 - 36^2} =$ _____
- *(70) The area of an equilateral triangle with side 60 is _____
- (71) If $y = 3(x - 2)^2 + k$ has a y-intercept of 14, then $k =$ _____
- (72) How many positive integers less than 99 are relatively prime to 99? _____
- (73) If the two roots of $f(x) = x^2 + bx + c$ are -3 and 17 , then the axis of symmetry is $x =$ _____
- (74) The sum of the infinite geometric series $10 + 4 + 1.6 + ... =$ _____
- (75) $\frac{3! + 4! + 5!}{3!} =$ _____
- (76) The first 4 decimal places of $\frac{231}{900}$ is 0. _____
- (77) The number of triangles which can be drawn from any vertex of a dodecagon is _____
- (78) How many nonnegative integers ordered pairs are solutions of $3x + 5y = 90$? _____
- (79) If $4^{2x+3} = 1600$, then $4^x =$ _____
- *(80) $102 \times 104 \times 107 =$ _____

2018-2019 TMSCA Middle School Number Sense Key #13

(1) 4037	(25) 32400	(45) 99	
(2) 248	(26) 6	(46) 8360	(64) 62
(3) 441	(27) 198	(47) 2482	(65) 15
(4) 2100			(66) 71
(5) 1400	(28) $2\frac{3}{4}$	(48) 22	
(6) 13	(29) 4.25	(49) 170	(67) 343
(7) 2	*(30) 30689 – 33919		(68) 65
(8) 20	(31) 1225	*(50) 192375 – 212625	(69) 15
(9) 32	(32) 463	(51) 8585	
*(10) 4990 – 5514	(33) $3\frac{5}{44}$	(52) 33	*(70) 1481 – 1636
(11) 4100		(53) $\frac{8}{3}$ or $2\frac{2}{3}$	(71) 2
(12) 972	(34) 28583	(54) 11	
(13) 961	(35) 3610		(72) 60
(14) 8924	(36) $380\frac{10}{49}$	(55) 16	
(15) 29		(56) 25	(73) 7
(16) 2300	(37) 3		(74) $\frac{50}{3}$ or $16\frac{2}{3}$
(17) 11016		(57) 9	
(18) 300	(38) 9	(58) 142	(75) 25
(19) 3441	(39) 9	(59) 81	(76) 2566
*(20) 29215 – 32289	*(40) 4370 – 4829	*(60) 62 – 68	(77) 220
(21) 10	(41) 70		(78) 7
(22) 2464	(42) 20	(61) 17	(79) 5
(23) 5050	(43) 108	(62) 540	*(80) 1078304 – 1191808
(24) 302.1	(44) 3375	(63) 3825	