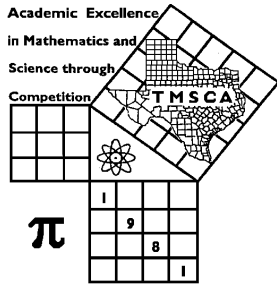


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____ School: _____			
SS/ID Number: _____ City: _____			
Grade: 4 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A			



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
TEST #8 ©
JANUARY 19, 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.

2018 – 2019 TMSCA Middle School Number Sense Test #8

- (1) $19 + 23 + 27 + 31 + 35 =$ _____
- (2) $97 \times 8 =$ _____
- (3) $905472 \div 18 =$ _____
- (4) $\frac{9}{20} =$ _____ (decimal)
- (5) $87 \times 25 =$ _____
- (6) $13 \times 85 =$ _____
- (7) $925 \div 6$ has a remainder of _____
- (8) $23 \times 23 =$ _____
- (9) $14 \div 2 + 5 \times 7 =$ _____
- *(10) $972 - 1347 + 2019 =$ _____
- (11) $11 \times 238 =$ _____
- (12) $81 \times 89 =$ _____
- (13) $86 \times 95 =$ _____
- (14) $1 + 2 + 3 + \dots + 18 =$ _____
- (15) $10812 = 102 \times$ _____
- (16) The median of the first 11 prime numbers is _____
- (17) $115 \times 15 =$ _____
- (18) $56 \times 12\frac{1}{2} =$ _____
- (19) $37 \times 6 \times 14 =$ _____
- *(20) $249 \times 2019 =$ _____
- (21) 8 yards + 1 foot + 7 inches = _____ inches
- (22) $68 \times 48 =$ _____
- (23) The sum of the LCM and GCD of 6 and 8 is _____
- (24) The sum of the smallest 24 positive even integers is _____
- (25) $17 \times 13\frac{7}{17} =$ _____
- (26) What is the smallest positive 3-digit number that has a remainder of 3 when divided by 5, 7, and 11? _____
- (27) $0.242424\dots =$ _____ (fraction)
- (28) The perimeter of a decagon with side 2.37 is _____
- (29) The next 3 terms in the sequence 2, 3, 5, 7, 11, 13, ... have a sum of _____
- *(30) $2019 \times 2019 =$ _____
- (31) $64 \times 76 =$ _____
- (32) If the mean of 14, 31 and x is 30, then x = _____
- (33) $3240 = 18^2 + x^2$, if $x > 0$, then x = _____
- (34) If $N = 2^4 \times 3^3 \times 5^2 \times 7$, then N has _____ positive integral divisors.
- (35) $8.5^2 =$ _____ (decimal)
- (36) If the area of a triangle is 54 and the base is 3 more than the height, then height is _____
- (37) If $3x + 7 = 64$, then $9x =$ _____
- (38) $285 \times 101 =$ _____
- (39) $33\frac{1}{3} \times 2019 =$ _____
- *(40) $\sqrt{563124} =$ _____
- (41) $\sqrt{7569} =$ _____
- (42) The sum of the positive integral divisors of 26 is _____
- (43) $72^3 = 18^3 \times$ _____

- (44) A set with 8 elements has _____ proper subsets
- (45) The area of a square with diagonal $5\sqrt{10}$ is _____
- (46) $327_9 =$ _____₁₀
- (47) The central angle of a regular dodecagon has a measure of _____°
- (48) The number of integer solutions of $9 < 2x < 27$ is _____
- (49) $75_{10} =$ _____₇
- *(50) $93214 \div 235 =$ _____
- (51) $53^2 - 42^2 =$ _____
- (52) $16 \times \frac{15}{19} =$ _____ (mixed number)
- (53) How many terms are in the sequence 1, 7, 13, 19, 25, ..., 121? _____
- (54) $\frac{11}{16} + \frac{16}{11} =$ _____ (mixed number)
- (55) The two solutions of $|x - c| = d$ are -5 and 33. The value of $c + d$ is _____
- (56) If $f(x) = 13x + 15$, then $f(87) - f(12) =$ _____
- (57) The slope of the line with y-intercept 4 which passes through (5, -2) is _____
- (58) $73_9 =$ _____₃
- (59) $437_9 \times 11_9 =$ _____₉
- *(60) $639 \times 142857 =$ _____
- (61) $0.93333\dots =$ _____ (fraction)
- (62) $107 \times 94 =$ _____
- (63) $f(x) = x^3 + 5x^2 - 4x + 3$. $f(-5) =$ _____
- (64) The difference in the 13th triangular number and the 9th triangular number is _____
- (65) If a line perpendicular to $3x + 2y = 7$ is $Ax - 3y = C$, which passes through (4, 5). $C =$ _____
- (66) How many triangles can be drawn using any 3 vertices of a nonagon? _____
- (67) $237_8 - 55_8 =$ _____₈
- (68) $36 + 12 + 4 + \dots =$ _____
- (69) What is the x^3 coefficient of $(3x^2 - 2x + 4)(2x^2 + 5x - 7)$? _____
- *(70) Find the length of the inner diagonal of a cube with side length 800. _____
- (71) The number of positive integers that are less than 40 that are relatively prime to 40 is _____
- (72) If $f(x) = 2x^2 + x + 8$, then $f(x - 3)$ has an axis of symmetry of $x =$ _____
- (73) How many distinct 5-letter arrangements can be made from {p,r,o,o,f}? _____
- (74) $4x^2 - 5x - 9 = 0$ has a discriminant of _____
- (75) The side of a rhombus with diagonals 16 and 30 is _____
- (76) The probability of rolling a sum of 9 or 10 when rolling two 6-sided die is _____
- (77) If $\log_8 x = \frac{7}{3}$, then $x =$ _____
- (78) $\frac{(x+5)!}{(x+2)!}$ will have a constant term of _____
- (79) $f(x) = x^3 - 4x^2 + cx + d$ has factors $(x - 3)$, $(x - 5)$ and $(x - k)$. $k =$ _____
- *(80) 900 miles = _____ yards

2018-2019 TMSCA Middle School Number Sense Key #8

- | | | | |
|-----------------------|-------------------------|--|---|
| (1) 135 | (24) 600 | (44) 255 | (64) 46 |
| (2) 776 | (25) 228 | (45) 125 | (65) - 7 |
| (3) 50304 | | (46) 268 | |
| (4) .45 | (26) 388 | (47) 30 | (66) 84 |
| (5) 2175 | (27) $\frac{8}{33}$ | | (67) 162 |
| (6) 1105 | (28) 23.7 | (48) 9 | (68) 54 |
| (7) 1 | | (49) 135 | |
| (8) 529 | (29) 59 | *(50) 377 - 416 | (69) 11 |
| (9) 42 | *(30) 3872543 - 4280179 | (51) 1045 | |
| *(10) 1562 - 1726 | (31) 4864 | (52) $12\frac{12}{19}$ | *(70) 1317- 1454 |
| (11) 2618 | (32) 45 | | (71) 16 |
| (12) 7209 | (33) 54 | (53) 21 | |
| (13) 8170 | (34) 120 | (54) $2\frac{25}{176}$ | (72) $\frac{11}{4}, 2\frac{3}{4}$ or 2.75 |
| (14) 171 | (35) 72.25 | (55) 33 | (73) 60 |
| (15) 106 | | (56) 975 | (74) 169 |
| (16) 13 | (36) 9 | | |
| (17) 1725 | (37) 171 | (57) $-\frac{6}{5}, -1\frac{1}{5}$ or -1.2 | (75) 17 |
| (18) 700 | (38) 28785 | (58) 2110 | |
| (19) 3108 | (39) 67300 | (59) 4817 | (76) $\frac{7}{36}$ |
| *(20) 477595 - 527867 | *(40) 713 - 787 | *(60) 86721342-95849904 | (77) 128 |
| (21) 307 | (41) 87 | (61) $\frac{14}{15}$ | (78) 60 |
| (22) 3264 | (42) 42 | (62) 10058 | (79) - 4 |
| (23) 26 | (43) 64 | (63) 23 | *(80) 1504800 - 1663200 |