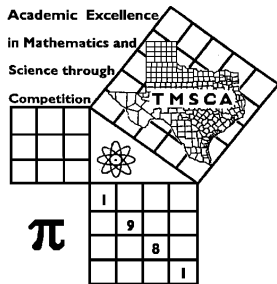


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 4 5 6 7 8	Classification: 1A 2A 3A 4A 5A 6A		



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
REGIONAL TEST ©
MARCH 4, 2023**

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.

2022-2023 TMSCA Middle School Number Sense Regional Test

- (1) $2345 + 202 =$ _____
- (2) $348 - 368 =$ _____
- (3) $90603 \div 3 =$ _____
- (4) $4.7 + 8.33 =$ _____ (decimal)
- (5) $2\frac{3}{8} =$ _____ (decimal)
- (6) $14 \times 15 =$ _____
- (7) $3\frac{4}{5} - 1\frac{3}{10} =$ _____ (mixed number)
- (8) $8^3 =$ _____
- (9) $19 \times 12 + 8 \times 19 =$ _____
- *(10) $756 + 76 + 321 =$ _____
- (11) $58 \times 62 =$ _____
- (12) $94 \times 98 =$ _____
- (13) $43 \times 47 =$ _____
- (14) 70% of 60 less 12 = _____
- (15) $84 \times 24 =$ _____
- (16) The mean of 18, 26, 24 and 28 is _____
- (17) $106^2 =$ _____
- (18) The LCM of 36 and 48 is _____
- (19) Which is larger, $\frac{5}{6}$ or 0.83? _____
- *(20) $323 \times 94 =$ _____
- (21) Two numbers have a sum of 20, a product of 96, and a positive difference of _____
- (22) $A = \{1, 3, 6, 10, 15\}$ and $B = \{1, 3, 5, 7, 9\}$.
 $A \cup B$ has how many elements? _____
- (23) The sum of the prime numbers between 90 and 100 is _____
- (24) $65^2 =$ _____
- (25) Round $2\sqrt{3}$ to the nearest hundredth. _____
- (26) $12 \times 1\frac{3}{4} =$ _____
- (27) $16^2 + 32^2 =$ _____
- (28) $0.818181\dots =$ _____ (fraction)
- (29) Find the value of k so that the slope of the line $8x - ky = 7$ is -4 . $k =$ _____
- *(30) $42 \times 38 + 66 \times 54 =$ _____
- (31) $(12x + 7)^2 = ax^2 + bx + c$. $a + b + c =$ _____
- (32) $475 \times 111 =$ _____
- (33) $33^2 =$ _____
- (34) $429 \times 56 =$ _____
- (35) $234 \times 12 =$ _____
- (36) If $2x + 7 = 15$, then $x^3 =$ _____
- (37) $|5 - 13| + 9 + |8 - 18| =$ _____
- (38) $45^2 - 55^2 =$ _____
- (39) The measure of each interior angle of a regular nonagon is _____ $^\circ$
- *(40) $71567 \div 123 =$ _____
- (41) The 15th triangular number is _____
- (42) $97 \times 107 =$ _____

- (43) $F = \{3, 6, 9, 15, 24, 39, a, b, 165, \dots\}$ $b =$ _____
- (44) $722_8 - 145_8 =$ _____ $_8$
- (45) The smaller root of $(5x - 1)^2 = \frac{4}{9}$ is _____
- (46) $992 \times 993 =$ _____
- (47) $\frac{39}{40} =$ _____ (decimal)
- (48) If $6^x = 11$, then $6^{x+3} =$ _____
- (49) The measure of an exterior angle of a regular pentagon is _____ $^\circ$.
- *(50) $\sqrt{588} \times \sqrt{833} =$ _____
- (51) $154 \text{ ft/s} =$ _____ mph
- (52) $11011011_2 =$ _____ $_4$
- (53) $104^3 =$ _____
- (54) $707^2 =$ _____
- (55) $26973 \div 111 =$ _____
- (56) $(3x + 5)(4x - 7) = ax^2 + bx + c$. $b =$ _____
- (57) The sum of the positive factors of 42 is _____
- (58) $\frac{8!}{7!4!2!} =$ _____
- (59) $21 \times \frac{17}{15} =$ _____ (mixed number)
- *(60) $\sqrt[3]{1733} \times \sqrt[3]{2201} \times \sqrt[3]{2722} =$ _____
- (61) The probability of rolling two dice and getting a sum of 2, 4 or 6 is _____
- (62) If the roots of $2x^2 - 7x + 6 = 0$ are P and Q, then $PQ + (P + Q) =$ _____
- (63) If the diagonal of a square is $\sqrt{112}$ in, then the area is _____ in^2
- (64) If $\frac{1}{5} + \frac{1}{9} = \frac{1}{x}$, then $x =$ _____
- (65) $34 \times 1111 =$ _____
- (66) The product of the coefficients of $(x - 3y)^2$ is _____
- (67) The sum of the reciprocals of the first seven triangular numbers is _____
- (68) $48^2 - 45^2 + 42^2 - 39^2 =$ _____
- (69) If the odds of losing are $\frac{5}{9}$, then the probability of winning is _____
- *(70) $6000 \text{ ft} =$ _____ rods
- (71) $43\frac{3}{4}\% =$ _____ (fraction)
- (72) The arithmetic sequence 8, 13, 18, 23, 28, ..., 88, 93 has _____ terms
- (73) The largest negative integral value of x such that $|x + 6| > 8$ is _____
- (74) $24 + 16 + \frac{32}{3} + \frac{64}{9} + \frac{128}{27} + \dots =$ _____
- (75) $1 - 4 + 9 - 16 + 25 - 36 + 49 - 64 + 81 =$ _____
- (76) $3 + 7 + 10 + 17 + 27 + \dots + 186 + 301 =$ _____
- (77) $345^2 =$ _____
- (78) The sum of the integral solutions of $|4x + 8| \leq 28$ is _____
- (79) The sum of the squares of the roots of $2x^2 + 5x - 3 = 0$ is _____
- *(80) Katie ran 6 miles yesterday. How many feet did she run? _____

2022-2023 TMSCA MSNS Regional Test Key

- | | | | |
|--------------------|---------------------|--|---|
| (1) 2547 | (22) 8 | (43) 102 | (63) 56 |
| (2) -20 | (23) 97 | (44) 555 | (64) $\frac{45}{14}$ or $3\frac{3}{14}$ |
| (3) 30201 | (24) 4225 | (45) $\frac{1}{15}$ | (65) 37774 |
| (4) 13.03 | (25) 3.46 | (46) 985056 | (66) -54 |
| (5) 2.375 | (26) 21 | (47) .975 | (67) $1\frac{3}{4}, \frac{7}{4}, 1.75$ |
| (6) 210 | (27) 1280 | (48) 2376 | (68) 522 |
| (7) $2\frac{1}{2}$ | (28) $\frac{9}{11}$ | (49) 72 | (69) $\frac{9}{14}$ |
| (8) 512 | (29) -2 | *(50) 665-734 | *(70) 346-381 |
| (9) 380 | *(30) 4902-5418 | (51) 105 | (71) $\frac{7}{16}$ |
| *(10) 1096-1210 | (31) 361 | (52) 3123 | (72) 18 |
| (11) 3596 | (32) 52725 | (53) 1124864 | (73) -15 |
| (12) 9212 | (33) 1089 | (54) 499849 | (74) 72 |
| (13) 2021 | (34) 24024 | (55) 243 | (75) 45 |
| (14) 30 | (35) 2808 | (56) -1 | (76) 781 |
| (15) 2016 | (36) 64 | (57) 96 | (77) 119025 |
| (16) 24 | (37) 27 | (58) $\frac{1}{6}$ | (78) -30 |
| (17) 11236 | (38) -1000 | (59) $23\frac{4}{5}$ | (79) $\frac{37}{4}$ or $9\frac{1}{4}$ or 9.25 |
| (18) 144 | (39) 140 | *(60) 2073-2290 | (80) 30096-33264 |
| (19) $\frac{5}{6}$ | *(40) 553-610 | (61) $\frac{1}{4}$ or .25 | |
| *(20) 28844-31880 | (41) 120 | (62) $\frac{13}{2}, 6\frac{1}{2}, 6.5$ | |
| (21) 4 | (42) 10379 | | |