

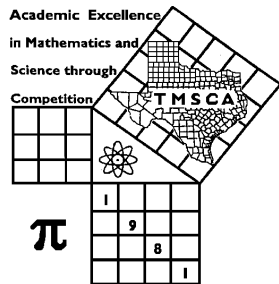
1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	

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 # 6 ©

DECEMBER 10, 2022

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 Test 6

- (1) $2023 + 187 =$ _____
- (2) $586 - 475 =$ _____
- (3) $4.2 - 1.57 =$ _____ (decimal)
- (4) $17^2 =$ _____
- (5) $18\% =$ _____ (fraction)
- (6) $\frac{1}{6} =$ _____ % (mixed number)
- (7) $64 \times 75 =$ _____
- (8) $150712 \div 9$ has a remainder of _____
- (9) $15 \times 16 + 14 \times 15 =$ _____
- *(10) $1234 + 774 + 258 =$ _____
- (11) $83 \times 77 =$ _____
- (12) 60% of 70 less 2 = _____
- (13) $44 \times 22 =$ _____
- (14) $65 \times 55 =$ _____
- (15) $9\frac{2}{5} - 4\frac{7}{10} =$ _____ (mixed number)
- (16) The mean of 38, 26, 32 and 28 is _____
- (17) Which is larger, $\frac{3}{7}$ or 0.4? _____
- (18) The median of 48, 36, 42 and 38 is _____
- (19) $98 \times 97 =$ _____
- *(20) $522 \times 58 =$ _____
- (21) $6\frac{4}{9} \times 6\frac{5}{9} =$ _____ (mixed number)
- (22) $3 \text{ yd} + 1 \text{ ft} + 10 \text{ in} =$ _____ inches
- (23) The GCD of 28 and 42 is _____
- (24) $7\frac{3}{4} \times 4\frac{6}{7} =$ _____ (mixed number)
- (25) The LCM of 28 and 42 is _____
- (26) $7! \div 4! =$ _____
- (27) $\frac{1}{7} + \frac{1}{14} + \frac{1}{21} =$ _____ (fraction)
- (28) $0.878787\dots =$ _____ (fraction)
- (29) 77 base 8 = _____ base 10
- *(30) $28 \times 32 + 27 \times 33 =$ _____
- (31) $14 + 18 + 22 + 26 + 30 + 34 =$ _____
- (32) If $4x + y = 11$ and $5x - y = 7$, then $x =$ _____
- (33) The slope of the line $2x + 8y = 5$ is _____
- (34) $(11x + 7)^2 = ax^2 + bx + c$. $a + b + c =$ _____
- (35) If the area of a square is 169 cm^2 , then the perimeter is _____ cm
- (36) $97 \times 101 =$ _____
- (37) $34 \times 111 =$ _____
- (38) $212 \times 13 =$ _____
- (39) $64^2 - 36^2 = 14k$. $k =$ _____
- *(40) $83875 \div 121 =$ _____
- (41) The distance between the points $(4, -3)$ and $(-4, 7)$ is k . $k^2 =$ _____
- (42) $555 \times \frac{5}{37} =$ _____

- (43) $S = \{7, 2, 9, 11, 20, 31, m, n\}$. $n =$ _____
- (44) $531_6 - 432_6 =$ _____₆
- (45) If $8^x = 192$, then $8^{x-2} =$ _____
- (46) $|2-9| + |3+9| + 1 =$ _____
- (47) The 17th triangular number is _____
- (48) The sum of the solutions to $|2x - 6| = 12$ is _____
- (49) The smaller root of $(3x + 1)^2 = \frac{9}{25}$ is _____
- *(50) $36 \times 40 \times 44 =$ _____
- (51) $90 \text{ mph} =$ _____ ft/s
- (52) How many positive integers less than or equal to 30 are relatively prime to 30? _____
- (53) $321_4 =$ _____₂
- (54) $4\frac{3}{4} + 3\frac{3}{7} =$ _____ (mixed number)
- (55) $(706)^2 =$ _____
- (56) $999 \times 995 =$ _____
- (57) $15 \times \frac{19}{21} =$ _____ (mixed number)
- (58) $46176 \div 111 =$ _____
- (59) $\frac{6}{11} - \frac{19}{32} =$ _____ (fraction)
- *(60) $\sqrt{222} \times \sqrt{851} =$ _____
- (61) The sum of the coefficients of $(2x + 5y)^3$ is _____
- (62) If the roots of $2x^2 + 8x - 10 = 0$ are P and Q, then $PQ + (P + Q) =$ _____
- (63) If the vertex of the parabola $y = x^2 - 8x + 12$ is (h, k), then k = _____
- (64) The harmonic mean of 8 and 12 is _____
- (65) The product of the coefficients of $(3x - y)^2$ is _____
- (66) The first 4 digits of the decimal for $\frac{8}{15}$ are 0. _____
- (67) $1^2 - 2^2 + 3^2 - 4^2 + \dots + 7^2 =$ _____
- (68) The probability of rolling two dice and getting a sum greater than 9 is _____
- (69) If $20^6 \div 4 = (2^x)(5^y)$, then $x + y =$ _____
- *(70) 15 miles = _____ rods
- (71) How many distinct 6-letter arrangements can be made from the letters of the word summer? _____
- (72) $\frac{3}{14} =$ _____ % (mixed number)
- (73) The arithmetic sequence 6, 15, 24, 33, ..., 141 has _____ terms
- (74) $(246_7) \times (5_7) =$ _____₇
- (75) The sum of the integral solutions of $|2x + 8| \leq 18$ is _____
- (76) $(7)(9)(13)(37) =$ _____
- (77) The smallest angle of the hands of a clock at 11:20 is _____°
- (78) $1 + 7 + 8 + 15 + 23 + \dots + 160 + 259 =$ _____
- (79) If m and n are natural numbers and $4\frac{3}{m} \times n\frac{5}{7} = 25$, then $m + n =$ _____
- *(80) Lilly ran a marathon in 2 hr 17 min., which equals _____ sec

2022-2023 TMSCA MSNS Test 6 Key

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|------------------------|-------------------------------|------------------------|--|
| (1) 2210 | (22) 130 | (43) 82 | (63) -4 |
| (2) 111 | (23) 14 | (44) 55 | (64) $\frac{48}{5}, 9\frac{3}{5}, 9.6$ |
| (3) 2.63 | (24) $37\frac{9}{14}$ | (45) 3 | (65) -54 |
| (4) 289 | (25) 84 | (46) 20 | (66) 5333 |
| (5) $\frac{9}{50}$ | (26) 210 | (47) 153 | (67) 28 |
| (6) $16\frac{2}{3}$ | (27) $\frac{11}{42}$ | (48) 6 | (68) $\frac{1}{6}$ |
| (7) 4800 | (28) $\frac{29}{33}$ | (49) $-\frac{8}{15}$ | (69) 16 |
| (8) 7 | (29) 63 | *(50) 60192-66528 | *(70) 4560-5040 |
| (9) 450 | *(30) 1698-1876 | (51) 132 | (71) 360 |
| *(10) 2153-2379 | (31) 144 | (52) 8 | (72) $21\frac{3}{7}$ |
| (11) 6391 | (32) 2 | (53) 111001 | (73) 16 |
| (12) 40 | (33) $-\frac{1}{4}$ or $-.25$ | (54) $8\frac{5}{28}$ | (74) 1632 |
| (13) 968 | (34) 324 | (55) 498436 | (75) -76 |
| (14) 3575 | (35) 52 | (56) 994005 | (76) 30303 |
| (15) $4\frac{7}{10}$ | (36) 9797 | (57) $13\frac{4}{7}$ | (77) 140 |
| (16) 31 | (37) 3774 | (58) 416 | (78) 671 |
| (17) $\frac{3}{7}$ | (38) 2756 | (59) $-\frac{17}{352}$ | (79) 13 |
| (18) 40 | (39) 200 | *(60) 413-456 | *(80) 7809-8631 |
| (19) 9506 | *(40) 659-727 | (61) 343 | |
| *(20) 28763-31789 | (41) 164 | (62) -9 | |
| (21) $42\frac{20}{81}$ | (42) 75 | | |