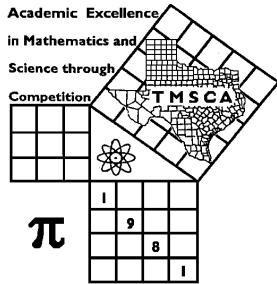


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 4 5 6 7 8	Classification: 1A 2A 3A 4A 5A 6A		



**TMSCA MIDDLE SCHOOL
NUMBER SENSE**

TEST #13 ©

FEBRUARY 25, 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 Test 13

- (1) $787 - 456 =$ _____
- (2) $2022 + 2023 =$ _____
- (3) $5.4 + 2.66 =$ _____ (decimal)
- (4) $7248 \div 8 =$ _____
- (5) $22\% =$ _____ (fraction)
- (6) $40 \times 35 =$ _____
- (7) $\frac{3}{8} + \frac{3}{5} =$ _____ (fraction)
- (8) $44 \times 75 =$ _____
- (9) $19^2 =$ _____
- *(10) $966 - 333 - 222 =$ _____
- (11) $\frac{5}{6} \times \frac{3}{5} =$ _____ (fraction)
- (12) $38 \times 78 =$ _____
- (13) $75 \times 95 =$ _____
- (14) $93 \times 94 =$ _____
- (15) $XXVII + XXVI =$ _____ (Arabic numeral)
- (16) 15 is what percent of 20? _____ %
- (17) $18 + 20 + 22 + 24 + 26 =$ _____
- (18) $\frac{13}{40} =$ _____ (decimal)
- (19) The largest prime number less than 40 is _____
- *(20) $663 \times 64 =$ _____
- (21) $4\frac{3}{8} \times 4\frac{5}{8} =$ _____ (mixed number)
- (22) $104 \times 112 =$ _____
- (23) $4\frac{5}{6} \times 6\frac{3}{4} =$ _____ (mixed number)
- (24) The cube root of -729 is _____
- (25) An angle complementary to 32° measures _____ $^\circ$.
- (26) If 5 ads cost \$5.75, then 4 ads cost \$ _____
- (27) $18^2 + 54^2 =$ _____
- (28) $|19 - 7| + 12 + |4 - 16| =$ _____
- (29) $\frac{8}{11} + \frac{11}{8} =$ _____ (mixed number)
- *(30) $\sqrt{201} \times \sqrt{260} =$ _____
- (31) $222 \times 12 =$ _____
- (32) If $f(x) = x^2 + 6x + 9$, then $f(22) =$ _____
- (33) $(36 \text{ in}) \times (72 \text{ in}) \times (108 \text{ in}) =$ _____ yd^3
- (34) What is 7% tax on \$49.00? \$ _____
- (35) $\frac{4}{11}$ of a gallon = _____ in^3
- (36) 24% of 69 is _____ % of 23
- (37) If $4^{3x} = \frac{1}{16}$, then $x =$ _____
- (38) $46^2 =$ _____
- (39) The number of the positive integral divisors of 20 is _____
- *(40) $\sqrt{296543} =$ _____
- (41) $87 \times 93 =$ _____
- (42) Round $\sqrt{5}$ to the nearest tenth. _____

(43) The distance between the points $(7, -4)$ and $(11, 5)$ is k . $k^2 =$ _____

(44) $222\frac{2}{9}\%$ of 27 is _____

(45) The measure of an interior angle of a regular octagon is _____ $^\circ$

(46) The largest prime divisor of 91 is _____

(47) $286 \times 63 =$ _____

(48) The total surface area of a cube with edge = 6 cm is _____ cm^2

(49) $S = \{3, 5, 9, 15, 23, 33, m, n, \dots\}$. $m + n =$ _____

*(50) $61 \times 65 \times 69 =$ _____

(51) My car gets 31 mi/gal and it has 31 gal in the tank. How many miles can I drive? _____

(52) $x + y = 26$ and $x - y = 4$. $x^2 - y^2 =$ _____

(53) $1005 \times 1007 =$ _____

(54) Find x if $\frac{1}{8} + \frac{1}{6} = \frac{1}{x}$. _____

(55) $(\sqrt{3} \times 4\sqrt{3})^2 =$ _____

(56) The multiplicative inverse of 3.6 is _____

(57) The sixth pentagonal number is _____

(58) $0.246246246\dots =$ _____ (fraction)

(59) How many positive integers less than 42 are relatively prime to 42? _____

*(60) $e^4 \times 55 =$ _____

(61) The sum of three consecutive even integers is 168. The smallest of these is _____

(62) $135^2 =$ _____

(63) The area of an isosceles trapezoid with a height of 15 and base lengths of 14 and 16 is _____

(64) The sum of the 25th triangular number and the 26th triangular number is _____

(65) $32^2 - 34^2 + 36^2 - 38^2 =$ _____

(66) The perimeter of an equilateral triangle with height = $9\sqrt{3}$ is _____

(67) If $12^6 \div 2 = (2^x)(3^y)$, then $x + y =$ _____

(68) If the probability that Dulles can beat Clements in Number Sense is 0.48, then the odds that Clements beats Dulles is _____

(69) The first 4 digits of the decimal for $\frac{17}{30}$ is 0. _____

*(70) $\pi^2 \times e^2 \times 67 =$ _____

(71) If $x^2 + y^2 = 193$, $x > y > 0$, and both x and y are integers then $x + y =$ _____

(72) $\sqrt[3]{15625} =$ _____

(73) $(14)^3 - (15)^3 =$ _____

(74) $(4657_8 \times 11_8) =$ _____₈

(75) $\frac{3}{7} =$ _____ % (mixed number)

(76) $\frac{7}{12} + \frac{7}{20} + \frac{7}{30} =$ _____ (mixed number)

(77) $(.6875)^2 =$ _____ (fraction)

(78) $1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 + 7^3 =$ _____

(79) $0.34666\dots =$ _____ (fraction)

*(80) One mile = _____ inches

22-23 TMSCA MSNS Test 13 Key

- | | | | |
|------------------------|----------------------|---------------------------------------|---|
| (1) 331 | (22) 11648 | (43) 97 | (63) 225 |
| (2) 4045 | (23) $32\frac{5}{8}$ | (44) 60 | (64) 676 |
| (3) 8.06 | (24) -9 | (45) 135 | (65) -280 |
| (4) 906 | (25) 58 | (46) 13 | (66) 54 |
| (5) $\frac{11}{50}$ | (26) 4.60 | (47) 18018 | (67) 17 |
| (6) 1400 | (27) 3240 | (48) 216 | (68) $\frac{13}{12}$ or $1\frac{1}{12}$ |
| (7) $\frac{39}{40}$ | (28) 36 | (49) 104 | (69) 5666 |
| (8) 3300 | (29) $2\frac{9}{88}$ | *(50) 259906-287264 | *(70) 4642-5130 |
| (9) 361 | *(30) 218-240 | (51) 961 | (71) 19 |
| *(10) 391-431 | (31) 2664 | (52) 104 | (72) 25 |
| (11) $\frac{1}{2}$ | (32) 625 | (53) 1012035 | (73) -631 |
| (12) 2964 | (33) 6 | (54) $\frac{24}{7}$ or $3\frac{3}{7}$ | (74) 53447 |
| (13) 7125 | (34) 3.43 | (55) 144 | (75) $42\frac{6}{7}$ |
| (14) 8742 | (35) 84 | (56) $\frac{5}{18}$ | (76) $1\frac{1}{6}$ |
| (15) 53 | (36) 72 | (57) 51 | (77) $\frac{121}{256}$ |
| (16) 75 | (37) $-\frac{2}{3}$ | (58) $\frac{82}{333}$ | (78) 784 |
| (17) 110 | (38) 2116 | (59) 12 | (79) $\frac{26}{75}$ |
| (18) .325 | (39) 6 | *(60) 2853-3153 | (80) 60192-66528 |
| (19) 37 | *(40) 518-571 | (61) 54 | |
| *(20) 40311-44553 | (41) 8091 | (62) 18225 | |
| (21) $20\frac{15}{64}$ | (42) 2.2 | | |