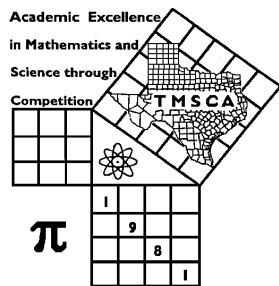


1st Score: _____	2nd Score: _____	3rd Score: _____	<b>Final Score</b>
Grader: _____	Grader: _____	Grader: _____	
<b>PLACE LABEL BELOW</b>			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 4 5 6 7 8	Classification: 1A 2A 3A 4A 5A 6A		



## TMSCA MIDDLE SCHOOL NUMBER SENSE

TEST #2 ©

OCTOBER 29, 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 2

- (1)  $2022 - 1954 =$  \_\_\_\_\_
- (2)  $888 + 777 =$  \_\_\_\_\_
- (3)  $15 \times 42 =$  \_\_\_\_\_
- (4)  $\frac{2}{3} =$  \_\_\_\_\_ % (mixed number)
- (5)  $(8)^3 =$  \_\_\_\_\_
- (6)  $\frac{3}{4} - \frac{1}{8} =$  \_\_\_\_\_ (fraction)
- (7)  $2.456 + 1.55 =$  \_\_\_\_\_ (decimal)
- (8)  $1563 \div 9$  has a remainder of \_\_\_\_\_
- (9)  $0.6 \times 1.2 =$  \_\_\_\_\_ (decimal)
- \*(10)  $2022 - 718 + 112 =$  \_\_\_\_\_
- (11)  $67 \times 73 =$  \_\_\_\_\_
- (12)  $103 \times 105 =$  \_\_\_\_\_
- (13)  $5\frac{3}{4} \times 8\frac{1}{5} =$  \_\_\_\_\_ (mixed number)
- (14)  $45 \times 65 =$  \_\_\_\_\_
- (15) CMIX = \_\_\_\_\_ (Arabic numeral)
- (16) 40% of 40 plus 24 is \_\_\_\_\_
- (17)  $\frac{9}{40} =$  \_\_\_\_\_ (decimal)
- (18)  $224 \times 13 =$  \_\_\_\_\_
- (19) Which is larger,  $\frac{9}{11}$  or  $\frac{11}{13}$ ? \_\_\_\_\_
- \*(20)  $73 \times 697 =$  \_\_\_\_\_
- (21) Two numbers have a sum of 20, a product of 84, and a positive difference of \_\_\_\_\_
- (22)  $24 \times 125 =$  \_\_\_\_\_
- (23)  $0.4666\dots =$  \_\_\_\_\_ (fraction)
- (24)  $(17)^2 =$  \_\_\_\_\_
- (25) The LCM of 35 and 25 is \_\_\_\_\_
- (26) 100 base 10 = \_\_\_\_\_ base 7
- (27) If 7 abs cost \$8.75, then 21 abs cost \$ \_\_\_\_\_
- (28)  $27 \times 3\frac{1}{3} =$  \_\_\_\_\_
- (29)  $(\sqrt[3]{1728})^2 =$  \_\_\_\_\_
- \*(30)  $\sqrt{423} \times \sqrt{634} =$  \_\_\_\_\_
- (31)  $(53)^2 =$  \_\_\_\_\_
- (32) 12 pints + 6 quarts = \_\_\_\_\_ gallons
- (33)  $(13)^3 =$  \_\_\_\_\_
- (34)  $\sqrt{5625} =$  \_\_\_\_\_
- (35)  $93 \times 97 =$  \_\_\_\_\_
- (36)  $(8x + 5)^2 = ax^2 + bx + c$ .  $a + c =$  \_\_\_\_\_
- (37) My car travels 29 miles on one gallon of gas. How far will it travel on 11 gallons? \_\_\_\_\_ mi
- (38)  $286 \times 21 =$  \_\_\_\_\_
- (39) The perimeter of a rectangle with length 6 in is 30 in. The area is \_\_\_\_\_ in<sup>2</sup>
- \*(40)  $57432 \div 142 =$  \_\_\_\_\_
- (41) 48 is what percent of 40? \_\_\_\_\_ %
- (42) The distance between the points  $(-6, 6)$  and  $(1, -1)$  is k.  $k^2 =$  \_\_\_\_\_

- (43) The sum of the prime divisors of 120 is \_\_\_\_\_
- (44)  $(.25)^2 =$  \_\_\_\_\_ (fraction)
- (45)  $\left(\frac{7}{4}\right)^2 =$  \_\_\_\_\_ (mixed number)
- (46) The negative reciprocal of 4.4 is \_\_\_\_\_
- (47)  $7+13+19+25+31+\dots+73 =$  \_\_\_\_\_
- (48) The sum of the solutions to  $|x-5|=14$  is \_\_\_\_\_
- (49)  $29^2 + 29 =$  \_\_\_\_\_
- \*(50)  $(11)^4 =$  \_\_\_\_\_
- (51) If the area of a circle is  $484\pi \text{ in}^2$ , then the diameter of the circle is \_\_\_\_\_ in
- (52)  $5\frac{4}{9} + 3\frac{8}{9} =$  \_\_\_\_\_ (mixed number)
- (53)  $31 \times 202 =$  \_\_\_\_\_
- (54)  $111 \times 567 =$  \_\_\_\_\_
- (55)  $\frac{2}{11}$  of a gallon = \_\_\_\_\_ cubic inches
- (56) If  $\frac{1}{3} + \frac{1}{7} = \frac{1}{x}$ , then  $x =$  \_\_\_\_\_
- (57) If  $3^{(x+y)} = 81$ , then  $(x+y)^3 =$  \_\_\_\_\_
- (58)  $(5\sqrt{2} \times 3\sqrt{2})^2 =$  \_\_\_\_\_
- (59) A jar contains 6 red, 5 blue, and 9 black marbles. The probability of drawing a red marble is \_\_\_\_\_ %
- \*(60)  $\pi^3 \times e^6 =$  \_\_\_\_\_
- (61) The perimeter of an equilateral triangle with height =  $7\sqrt{3}$  is \_\_\_\_\_
- (62) If  $f(x) = x^2 - 3$ , then  $f(f(5)) =$  \_\_\_\_\_
- (63) If  $\sqrt{75} + \sqrt{12} = \sqrt{k}$ , then  $k =$  \_\_\_\_\_
- (64)  $\frac{7!}{4!} \times (5)^{-1} =$  \_\_\_\_\_
- (65)  $2\frac{1}{4}$  is the square root of \_\_\_\_\_
- (66) The sum of the 15<sup>th</sup> and 16<sup>th</sup> triangular numbers is \_\_\_\_\_
- (67) The harmonic mean of 2 and 3 is \_\_\_\_\_
- (68) Two dice are rolled. What are the odds that a sum of 5 was rolled? \_\_\_\_\_
- (69)  $1-4+9-16+25-36+49 =$  \_\_\_\_\_
- \*(70)  $2795 \times 0.428571 =$  \_\_\_\_\_
- (71)  $\sqrt[3]{10648} =$  \_\_\_\_\_
- (72) If  $(x, y)$  is the midpoint of the segment with endpoints  $(4, 6)$  and  $(-7, -3)$ , then  $x + y =$  \_\_\_\_\_
- (73)  $(506)^2 =$  \_\_\_\_\_
- (74)  $0.24333\dots =$  \_\_\_\_\_ (fraction)
- (75) If  $234_b = 94$ , then  $123_b =$  \_\_\_\_\_
- (76)  $222 \times \frac{2}{27} =$  \_\_\_\_\_ (mixed number)
- (77)  $(5454_6 \times 11_6) =$  \_\_\_\_\_<sub>6</sub>
- (78) The sum of the positive integral divisors of 28 is \_\_\_\_\_
- (79) 15% of  $366\frac{2}{3}$  is \_\_\_\_\_
- \*(80) How many minutes are in a seven-day week? \_\_\_\_\_ min

2022-2023 TMSCA MSNS Test 2 Key

- |                       |                     |                                          |                                             |
|-----------------------|---------------------|------------------------------------------|---------------------------------------------|
| (1) 68                | (22) 3000           | (43) 10                                  | (63) 147                                    |
| (2) 1665              | (23) $\frac{7}{15}$ | (44) $\frac{1}{16}$                      | (64) 42                                     |
| (3) 630               | (24) 289            | (45) $3\frac{1}{16}$                     | (65) $\frac{81}{16}, 5\frac{1}{16}, 5.0625$ |
| (4) $66\frac{2}{3}$   | (25) 175            | (46) $-\frac{5}{22}$                     | (66) 256                                    |
| (5) 512               | (26) 202            | (47) 480                                 | (67) $\frac{12}{5}, 2\frac{2}{5}, 2.4$      |
| (6) $\frac{5}{8}$     | (27) 26.25          | (48) 10                                  | (68) $\frac{1}{8}$ or .125                  |
| (7) 4.006             | (28) 90             | (49) 870                                 | (69) 28                                     |
| (8) 6                 | (29) 144            | * (50) 13909–15373                       | * (70) 1138–1257                            |
| (9) .72               | * (30) 492–543      | (51) 44                                  | (71) 22                                     |
| * (10) 1346–1486      | (31) 2809           | (52) $9\frac{1}{3}$                      | (72) 0                                      |
| (11) 4891             | (32) 3              | (53) 6262                                | (73) 256036                                 |
| (12) 10815            | (33) 2197           | (54) 62937                               | (74) $\frac{73}{300}$                       |
| (13) $47\frac{3}{20}$ | (34) 75             | (55) 42                                  | (75) 51                                     |
| (14) 2925             | (35) 9021           | (56) $\frac{21}{10}, 2\frac{1}{10}, 2.1$ | (76) $16\frac{4}{9}$                        |
| (15) 909              | (36) 89             | (57) 64                                  | (77) 104434                                 |
| (16) 40               | (37) 319            | (58) 900                                 | (78) 56                                     |
| (17) .225             | (38) 6006           | (59) 30                                  | (79) 55                                     |
| (18) 2912             | (39) 54             | * (60) 11884–13134                       | * (80) 9576–10584                           |
| (19) $\frac{11}{13}$  | * (40) 385–424      | (61) 42                                  |                                             |
| * (20) 48337–53425    | (41) 120            | (62) 481                                 |                                             |
| (21) 8                | (42) 98             |                                          |                                             |