

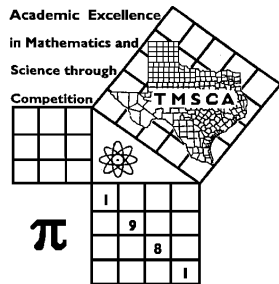
1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	

PLACE LABEL BELOW

Name: _____ School: _____

SS/ID Number: _____ City: _____

Grade: 4 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A



T M S C A M I D D L E S C H O O L

N U M B E R S E N S E

T E S T # 1 2 ©

F E B R U A R Y 2 2 , 2 0 2 0

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.

2019-2020 TMSCA Middle School Number Sense Test 12

- (1) $623 + 345 =$ _____
- (2) $846 - 145 =$ _____
- (3) $32 \times 25 =$ _____
- (4) $2719 \div 9$ has a remainder of _____
- (5) $\frac{1}{3} + \frac{1}{2} =$ _____ (fraction)
- (6) $627 \times 11 =$ _____
- (7) $7\frac{4}{5} - 2\frac{3}{10} =$ _____ (mixed number)
- (8) $16^2 =$ _____
- (9) $44 \times 15 =$ _____
- *(10) $173 + 455 + 722 =$ _____
- (11) $45 \times 85 =$ _____
- (12) $105 \times 106 =$ _____
- (13) $3\frac{3}{4} \times 4\frac{1}{3} =$ _____ (mixed number)
- (14) $91 \times 92 =$ _____
- (15) $18 \times 24 + 24 \times 2 =$ _____
- (16) MDCLXIV = _____ (Arabic numeral)
- (17) The smallest prime number greater than 31 is _____
- (18) $10 + 15 + 20 + 25 + 30 =$ _____
- (19) 6% tax on \$12.00 is \$0. _____
- *(20) $482 \times 635 =$ _____
- (21) $\frac{2}{9} \times \frac{3}{4} =$ _____ (fraction)
- (22) The LCM of 18 and 21 is _____
- (23) $0.636363\dots =$ _____ (fraction)
- (24) 62 base 8 = _____ base 10
- (25) $(6 \text{ cm})(12 \text{ cm})(2 \text{ cm}) =$ _____ cm^3
- (26) 50% of 40 is 25% of _____
- (27) $57 \times 63 =$ _____
- (28) $2000 \times 6 + 36 =$ _____
- (29) $23^2 + 69^2 =$ _____
- *(30) $45 \times 22 + 44 \times 24 =$ _____
- (31) The sum of the distinct prime divisors of 98 is _____
- (32) $\frac{2}{3}$ of a gallon = _____ cubic inches
- (33) $73 \times 77 =$ _____
- (34) The number of positive integral divisors of 30 is _____
- (35) The 7th triangular number is _____
- (36) $67^2 + 64^2 =$ _____
- (37) How many integers between 22 and 42 are divisible by 4? _____
- (38) If $n = \sqrt{361}$, then $n + 21 =$ _____
- (39) If $f(x) = x^2 - 8x + 16$, then $f(5) =$ _____
- *(40) $\sqrt{2988} =$ _____
- (41) $49^2 - 41^2 =$ _____
- (42) If 8 lbs of apricots cost \$16.80, then 16 lbs of apricots cost \$ _____

- (43) $64 \times 111 =$ _____
- (44) $333 \times \frac{4}{37} =$ _____
- (45) If $9^x = 6$, then $9^{(x+2)} =$ _____
- (46) The hypotenuse of a right triangle with integral sides is 61. The perimeter is _____
- (47) $58^2 =$ _____
- (48) $\sqrt[3]{238328} =$ _____
- (49) The larger root of $(7x - 2)^2 = \frac{16}{25}$ is _____
- *(50) $16 \times 24 \times 32 =$ _____
- (51) The area of an equilateral triangle with a side = 9 cm is _____ $\sqrt{3}$ cm²
- (52) $2323_4 =$ _____₂
- (53) $17 \times \frac{14}{19} =$ _____ (mixed number)
- (54) $\frac{1}{24} + \frac{1}{48} + \frac{1}{80} =$ _____ (fraction)
- (55) $991 \times 993 =$ _____
- (56) The sum of the positive integral divisors of 90 is _____
- (57) $0.181818... + 0.333... =$ _____ (fraction)
- (58) $7\frac{2}{9} \times 7\frac{7}{9} =$ _____ (mixed number)
- (59) $4\frac{6}{11} \div \frac{5}{22} =$ _____
- *(60) 2340 feet = _____ inches
- (61) The harmonic mean of 8 and 15 is _____
- (62) The 5th octagonal number is _____
- (63) $567_8 \times 11_8 =$ _____₈
- (64) $24 + 16 + \frac{32}{3} + \frac{64}{9} + \dots =$ _____
- (65) If $20^{12} \div 16 = (2^x)(5^y)$, then $x + y =$ _____
- (66) The probability of rolling two dice and getting a sum of 8, 9 or 10 is _____
- (67) If $f(x) = x^2 + x + 1$, then $f(f(4)) =$ _____
- (68) If the roots of $3x^2 + 17x - 6 = 0$ are P and Q, then $PQ + (P + Q) =$ _____
- (69) If $135_b = 75$, then $66_b =$ _____
- *(70) $e^4 \times \pi^5 =$ _____
- (71) $\frac{7}{12} - \frac{22}{35} =$ _____ (fraction)
- (72) The first 4 digits of the decimal for $\frac{23}{30}$ is 0. _____
- (73) The vertex of $y = x^2 + 6x + 7$ is (h, k). k = _____
- (74) The sum of the integral solutions of $|7x + 14| < 42$ is _____
- (75) $63 \div 0.58333... =$ _____
- (76) $2^3 + 3^3 + \dots + 6^3 =$ _____
- (77) If the roots of $x^3 + 3x^2 - 6x - 8 = 0$ are P, Q and R, then $PQR + P + Q + R =$ _____
- (78) The probability of getting exactly 3 tails when flipping a coin 5 times is _____
- (79) The smallest angle of the hands of a clock at 2:25 is _____^o
- (80) How many minutes are in March, 2020? _____

2019-2020 TMSCA MSNS Test 12 Key

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|------------------------|---------------------|--------------------------------------------|-------------------------------------------|
| (1) 968 | (22) 126 | (43) 7104 | (63) 6457 |
| (2) 701 | (23) $\frac{7}{11}$ | (44) 36 | (64) 72 |
| (3) 800 | (24) 50 | (45) 486 | (65) 32 |
| (4) 1 | (25) 144 | (46) 132 | (66) $\frac{1}{3}$ |
| (5) $\frac{5}{6}$ | (26) 80 | (47) 3364 | (67) 463 |
| (6) 6897 | (27) 3591 | (48) 62 | (68) $-\frac{23}{3}$ or $-7\frac{2}{3}$ |
| (7) $5\frac{1}{2}$ | (28) 12036 | (49) $\frac{2}{5}$ or .4 | (69) 48 |
| (8) 256 | (29) 5290 | * (50) 11674–12902 | (70) 15873–17543 |
| (9) 660 | * (30) 1944–2148 | (51) $\frac{81}{4}, 20\frac{1}{4}, 20.25$ | (71) $-\frac{19}{420}$ |
| * (10) 1283–1417 | (31) 9 | (52) 10111011 | (72) 7666 |
| (11) 3825 | (32) 154 | (53) $12\frac{10}{19}$ | (73) -2 |
| (12) 11130 | (33) 5621 | (54) $\frac{3}{40}$ | (74) -22 |
| (13) $16\frac{1}{4}$ | (34) 8 | (55) 984063 | (75) 108 |
| (14) 8372 | (35) 28 | (56) 234 | (76) 440 |
| (15) 480 | (36) 8585 | (57) $\frac{17}{33}$ | (77) 5 |
| (16) 1664 | (37) 5 | (58) $56\frac{14}{81}$ | (78) $\frac{5}{16}$ or .3125 |
| (17) 37 | (38) 40 | (59) 20 | (79) $77.5, 77\frac{1}{2}, \frac{155}{2}$ |
| (18) 100 | (39) 1 | * (60) 26676–29484 | (80) 42408–46872 |
| (19) 72 | * (40) 52–57 | (61) $\frac{240}{23}$ or $10\frac{10}{23}$ | |
| * (20) 290767 – 321373 | (41) 720 | (62) 65 | |
| (21) $\frac{1}{6}$ | (42) 33.60 | | |