

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 #1 ©

OCTOBER 23, 2021

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.

[illegible]

2021-2022 TMSCA Middle School Number Sense Test 1

(1) $754 - 234 =$ _____

(22) $106 \times 102 =$ _____

(2) $654 + 345 =$ _____

(23) The GCD of 24, 60 and 72 is _____

(3) $\frac{7}{8} - \frac{3}{4} =$ _____ (fraction)

(24) $\frac{1}{5} + \frac{1}{10} + \frac{1}{15} =$ _____ (fraction)

(4) $6.25 + 3.5 =$ _____ (mixed number)

(25) What is 8% tax on \$60.00? \$_____

(5) $13^2 =$ _____

(26) $3544 \div 7 =$ _____ (mixed number)

(6) $3434 \div 17 =$ _____

(27) $17^2 - 16^2 =$ _____

(7) $63 \times 101 =$ _____

(28) 1 yard + 1 foot + 1 inch = _____ inches

(8) $39 - (3 \times 4) + 5 =$ _____

(29) $73_8 =$ _____ base 10

(9) 65% = _____ (fraction)

*(30) $\sqrt{485402} =$ _____

*(10) $688 + 423 - 489 =$ _____

(31) The cost of driving
72 miles at 25¢ per mile is \$_____

(11) $468 \times 11 =$ _____

(32) $97 \times 102 =$ _____

(12) $35 \times 45 =$ _____

(33) If the perimeter of a
square is 48, then the area is _____

(13) $8^3 =$ _____

(34) $12.5 \times 0.05 =$ _____

(14) $56 \times 54 =$ _____

(35) 462 cubic inches = _____ gallons

(15) The mean of 24, 32 and 37 is _____

(36) If the perimeter of an equilateral
triangle is 36, then the area = _____ $\sqrt{3}$

(16) $36 \times 44 =$ _____

(37) If $4x - 9 = 27$, then $x^2 =$ _____

(17) 30% of 40 plus 28 is _____

(38) If $4^x = 5.2$, then $4^{x+1} =$ _____

(18) $30 + 33 + 36 + 39 + 42 =$ _____

(39) 1 gallon = _____ ounces

(19) $4\frac{1}{4} - 1\frac{3}{8} =$ _____ (mixed number)

*(40) 3 miles = _____ feet

*(20) $522 \times 678 =$ _____

(41) $(17x - 5)^2 = ax^2 + bx + c$. $a + b + c =$ _____

(21) $4\frac{1}{3} \times 6\frac{1}{2} =$ _____ (mixed number)

(42) $325_7 + 252_7 =$ _____₇

- (43) There are ____ positive integral divisors of 36.
- (44) $222 \times \frac{6}{37} =$ _____
- (45) The seventh triangular number is _____
- (46) If the total surface area of a cube is 486 cm^2 , then the length of an edge is ____ cm
- (47) $S = \{4, 6, 10, 16, 26, 42, 68, k, 178, \dots\}$. $k =$ _____
- (48) $1694 \times 6 + 36 =$ _____
- (49) The larger root of $(5x - 1)^2 = \frac{4}{9}$ is _____
- *(50) $18 \times 22 \times 26 =$ _____
- (51) $47_8 =$ _____₂
- (52) $0.151515\dots =$ _____ (fraction)
- (53) $996 \times 997 =$ _____
- (54) The slope of a line containing the points $(4, -4)$ and $(-2, 8)$ is _____
- (55) $(18 + 28 \times 19) \div 7$ has a remainder of _____
- (56) $5\frac{3}{5} \times 5\frac{2}{5} =$ _____ (mixed number)
- (57) $603^2 =$ _____
- (58) 4.8 is what percent of 60? _____ %
- (59) $13 \times \frac{15}{17} =$ _____ (mixed number)
- *(60) $\sqrt[3]{204277} =$ _____
- (61) $f(x) = x^2 - 10x + 25$. $f(24) =$ _____
- (62) $15 + 12 + \frac{48}{5} + \frac{192}{25} + \frac{768}{125} + \dots =$ _____
- (63) The probability of rolling two dice and getting a sum of 2 or 3 is _____
- (64) $95^\circ \text{F} =$ _____ $^\circ \text{C}$
- (65) $333 \times \frac{1}{27} =$ _____ (mixed number)
- (66) If the vertex of the parabola $y = x^2 - 6x + 13$ is (h, k) , then $k =$ _____
- (67) $366_8 \div 6_8 =$ _____₈
- (68) The first 4 digits of the decimal for $\frac{33}{45}$ are 0. _____
- (69) If $24^4 \div 6 = (2^x)(3^y)$, then $x + y =$ _____
- *(70) $1000 \text{ ft/s} =$ _____ mph
- (71) $15^3 - 14^3 =$ _____
- (72) $37^2 + 67^2 =$ _____
- (73) $9 + 6 + 15 + 21 + 36 + \dots + 243 + 393 =$ _____
- (74) If $f(x) = \frac{9x - 4}{7} - 14$, then $f^{-1}(6) =$ _____
- (75) If $(3)(7)(13)(k) = 40404$, then $k =$ _____
- (76) Find the sum of the reciprocals of the first five triangular numbers. _____
- (77) The 16th term of the sequence 7, 13, 19, 25, ... is _____
- (78) The sum of the squares of the roots of $2x^2 - 2x - 24 = 0$ is _____
- (79) The sum of the integral solutions of $|3x + 9| \leq 30$ is _____
- *(80) If light travels 186,000 miles per second, how far does light travel in 4.5 seconds? _____ mi

2021-2022 TMSCA MSNS Test 1 Key

(1) 520	(22) 10812	(43) 9	(63) $\frac{1}{12}$
(2) 999	(23) 12	(44) 36	(64) 35
(3) $\frac{1}{8}$	(24) $\frac{11}{30}$	(45) 28	(65) $12\frac{1}{3}$
(4) $9\frac{3}{4}$	(25) 4.80	(46) 9	(66) 4
(5) 169	(26) $506\frac{2}{7}$	(47) 110	(67) 51
(6) 202	(27) 33	(48) 10200	(68) 7333
(7) 6363	(28) 49	(49) $\frac{1}{3}$	(69) 14
(8) 32	(29) 59	*(50) 9782–10810	*(70) 648–715
(9) $\frac{13}{20}$	*(30) 662–731	(51) 100111	(71) 631
*(10) 591–653	(31) 18.00	(52) $\frac{5}{33}$	(72) 5858
(11) 5148	(32) 9894	(53) 993012	(73) 1023
(12) 1575	(33) 144	(54) –2	(74) 16
(13) 512	(34) .625 or $\frac{5}{8}$	(55) 4	(75) 148
(14) 3024	(35) 2	(56) $30\frac{6}{25}$	(76) $1\frac{2}{3}$ or $\frac{5}{3}$
(15) 31	(36) 36	(57) 363609	(77) 97
(16) 1584	(37) 81	(58) 8	(78) 25
(17) 40	(38) 20.8, $20\frac{4}{5}$, $\frac{104}{5}$	(59) $11\frac{8}{17}$	(79) –63
(18) 180	(39) 128	*(60) 56–61	*(80) 795150–878850
(19) $2\frac{7}{8}$	*(40) 15048–16632	(61) 361	
*(20) 336221–371611	(41) 144	(62) 75	
(21) $28\frac{1}{6}$	(42) 610		