

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 GEAR-UP TEST ©

2020-2021

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]

2020-2021 TMSCA Middle School Number Sense Gear Up Test

- (1) $2020 + 2021 =$ _____
- (2) $845 - 236 =$ _____
- (3) $36 \times 25 =$ _____
- (4) $16^2 =$ _____
- (5) $\frac{7}{8} + \frac{3}{4} =$ _____ (mixed number)
- (6) $12\% =$ _____ (fraction)
- (7) $\frac{5}{6} =$ _____ % (mixed number)
- (8) $123456 \div 3$ has a remainder of _____
- (9) $18 - 6 \div 2 + 3 \times 5 =$ _____
- *(10) $675 + 233 + 709 =$ _____
- (11) $36 \times 34 =$ _____
- (12) $106 \times 112 =$ _____
- (13) $85 \times 35 =$ _____
- (14) $2\frac{2}{3} + 3\frac{1}{6} =$ _____ (mixed number)
- (15) Which is smaller, $\frac{5}{9}$ or $\frac{7}{11}$? _____
- (16) $12 + 16 + 20 + 24 + 28 + 32 =$ _____
- (17) The median of 46, 36, 42 and 38 is _____
- (18) $125 \div 0.25 =$ _____
- (19) 40% of 90 less 16 = _____
- *(20) $412 \times 588 =$ _____
- (21) $94^2 =$ _____
- (22) $6! \div 4! + 5! =$ _____
- (23) $0.3565656... =$ _____ (fraction)
- (24) $\frac{3}{7} + \frac{3}{14} + \frac{3}{28} =$ _____ (fraction)
- (25) The LCM of 30 and 42 is _____
- (26) $2 \text{ yd} + 3 \text{ ft} + 4 \text{ in} =$ _____ inches
- (27) 73 base 10 = _____ base 8
- (28) $14 \times 4\frac{2}{7} =$ _____
- (29) $21^2 + 42^2 =$ _____
- *(30) $24 \times 16 + 23 \times 17 =$ _____
- (31) If the perimeter of a square is 68 cm, then the area is _____ cm^2
- (32) $64^2 - 36^2 =$ _____
- (33) $(11x + 6)^2 = ax^2 + bx + c$. $a + b + c =$ _____
- (34) The measure of each exterior angle of a regular hexagon is _____ $^\circ$
- (35) If $2x - 3y = 5$ and $3x + y = -9$, then $x =$ _____
- (36) $63 \times 111 =$ _____
- (37) $4\frac{2}{7} \times 4\frac{5}{7} =$ _____ (mixed number)
- (38) The slope of the line $9x - 3y = 7$ is _____
- (39) $99 \times 104 =$ _____
- *(40) $213691 \div 404 =$ _____
- (41) $323 \times 13 =$ _____
- (42) The negative reciprocal of 5.4 is _____

- (43) The 15th triangular number is _____
- (44) $888 \times \frac{3}{37} =$ _____
- (45) The distance between the points $(-6, 3)$ and $(4, -5)$ is k . $k^2 =$ _____
- (46) $534_6 + 225_6 =$ _____₆
- (47) The smaller root of $(7x + 1)^2 = \frac{9}{16}$ is _____
- (48) $B = \{1, 3, 4, 7, 11, 18, m, n\}$. $n =$ _____
- (49) The sum of the solutions to $|2x - 8| = 14$ is _____
- *(50) $15 \times 20 \times 25 =$ _____
- (51) $233_4 =$ _____₂
- (52) $15 \times \frac{19}{21} =$ _____ (mixed number)
- (53) $991 \times 993 =$ _____
- (54) $66 \text{ ft/s} =$ _____ mph
- (55) $707^2 =$ _____
- (56) How many positive integers less than or equal to 38 are relatively prime to 38? _____
- (57) $\frac{5}{14} - \frac{16}{41} =$ _____ (fraction)
- (58) $4995 \div 111 =$ _____
- (59) $6\frac{3}{4} \times 8\frac{1}{3} =$ _____ (mixed number)
- *(60) $\sqrt{640} \times \sqrt{802} =$ _____
- (61) The probability of rolling two dice and getting a sum of 2, 6 or 12 is _____
- (62) If the roots of $2x^2 + 5x - 3 = 0$ 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) If $(12)^x = 9$, then $(12)^{(x+1)} =$ _____
- (65) The first 4 digits of the decimal for $\frac{8}{45}$ are 0. _____
- (66) $2.84 =$ _____ (mixed number)
- (67) The harmonic mean of 10 and 15 is _____
- (68) If the diagonal of a square is $\sqrt{50}$ in, then the area is _____ in²
- (69) If $18^6 \div 6 = (2^x)(3^y)$, then $x + y =$ _____
- *(70) $2 \times e^2 \times \pi^4 =$ _____
- (71) If $f(x) = \frac{3x-9}{6} - 8$, then $f^{-1}(12) =$ _____
- (72) The sum of the integral solutions of $|5x + 15| \leq 40$ is _____
- (73) $(234_5) \times (4_5) =$ _____₅
- (74) How many distinct 6-letter arrangements can be made from the letters of the word cannon? _____
- (75) $5 + 6 + 11 + 17 + 28 + \dots + 191 + 309 =$ _____
- (76) If $(3)(7)(74)(k) = 60606$, then $k =$ _____
- (77) The arithmetic sequence 12, 20, 28, 36, ..., 108 has _____ terms
- (78) $30^3 - 29^3 =$ _____
- (79) The smallest angle of the hands of a clock at 6:40 is _____ °
- *(80) $6\frac{2}{3} \times 42 \times 45 \times 3\frac{2}{5} =$ _____

2020-2021 TMSA MSNS Gear Up Key

(1) 4041	(22) 150	(43) 120	(63) -4
(2) 609	(23) $\frac{353}{990}$	(44) 72	(64) 108
(3) 900		(45) 164	(65) 1777
(4) 256	(24) $\frac{3}{4}$	(46) 1203	
(5) $1\frac{5}{8}$	(25) 210	(47) $-\frac{1}{4}$ or $-.25$	(66) $2\frac{21}{25}$
(6) $\frac{3}{25}$	(26) 112	(48) 47	(67) 12
	(27) 111	(49) 8	(68) 25
(7) $83\frac{1}{3}$	(28) 60	*(50) 7125-7875	(69) 16
(8) 0	(29) 2205	(51) 101111	*(70) 1368-1511
(9) 30	*(30) 737-813	(52) $13\frac{4}{7}$	(71) 43
*(10) 1537-1697	(31) 289	(53) 984063	(72) -51
(11) 1224	(32) 2800	(54) 45	(73) 2101
(12) 11872	(33) 289	(55) 499849	(74) 120
(13) 2975	(34) 60	(56) 18	(75) 803
(14) $5\frac{5}{6}$	(35) -2	(57) $-\frac{19}{574}$	(76) 39
	(36) 6993	(58) 45	(77) 13
(15) $\frac{5}{9}$	(37) $20\frac{10}{49}$	(59) $56\frac{1}{4}$	(78) 2611
(16) 132	(38) 3	*(60) 681-752	(79) 40
(17) 40	(39) 10296	(61) $\frac{7}{36}$	
(18) 500	*(40) 503-555	(62) -4	*(80) 40698-44982
(19) 20			
*(20) 230144-254368	(41) 4199		
(21) 8836	(42) $-\frac{5}{27}$		