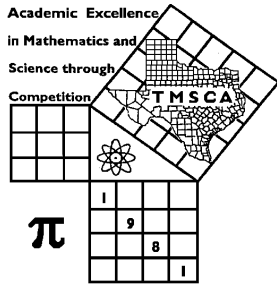


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 4 5 6 7 8	Classification: 1A 2A 3A 4A 5A 6A		



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
REGIONAL TEST ©
MARCH 7, 2020**

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 Region

- (1) $1912 + 2040 + 44 =$ _____
- (2) $1689 - 234 - 55 =$ _____
- (3) $\frac{4}{5} + \frac{7}{10} =$ _____ (mixed number)
- (4) $85\% =$ _____ fraction)
- (5) $120 \times 15 =$ _____
- (6) $786 \div 9 =$ _____ (mixed number)
- (7) $22^2 + 16 =$ _____
- (8) $777 \times 11 =$ _____
- (9) $9(12) + 11(12) - 8(12) =$ _____
- *(10) $2318 + 2788 + 693 =$ _____
- (11) $36 \times 76 =$ _____
- (12) $111 \times 104 =$ _____
- (13) $45 \times 14 + 16 \times 45 =$ _____
- (14) 60 is _____ % of 80.
- (15) MMXLVI = _____ (Arabic numeral)
- (16) $66 \times 25 =$ _____
- (17) The sum of the prime numbers between 50 and 60 is _____
- (18) $684329 \div 11$ has a remainder of _____
- (19) 54 minus 70% of 80 = _____
- *(20) $242 \times 728 =$ _____
- (21) $42 \times 286 =$ _____
- (22) $85 \times 45 =$ _____
- (23) $0.636363\dots =$ _____ (fraction)
- (24) If $n = \sqrt[3]{2197}$, then $n^2 - 19 =$ _____
- (25) 552 base 10 = _____ base 8
- (26) $6\frac{4}{7} \times 7\frac{2}{3} =$ _____ (mixed number)
- (27) $\frac{10}{11} - \frac{11}{10} =$ _____ (fraction)
- (28) 45% of 187 is 15% of _____
- (29) $6\frac{7}{8} \div 2\frac{3}{4} =$ _____ (mixed number)
- *(30) $\sqrt{1042} \times \sqrt{212} =$ _____
- (31) $84^2 + 32^2 =$ _____
- (32) The slope of the line $6x - 3y = 11$ is _____
- (33) $8 + 12 + 16 + 20 + 24 + \dots + 48 =$ _____
- (34) If 9 pots cost \$3.33, then 15 pots cost \$_____
- (35) $(24 + 6 \times 12) \div 7$ has a remainder of _____
- (36) $37^2 - 23^2 = 7 \times k$. $k =$ _____
- (37) The sum of the positive integral divisors of 90 is _____
- (38) $846 \times 111 =$ _____
- (39) $\frac{9}{11}$ of a gallon = _____ cubic inches
- *(40) 2.5 miles = _____ inches
- (41) The hypotenuse of a right triangle with integral sides is 13. The area is _____
- (42) The smaller root of $(x - 2)^2 = \frac{9}{25}$ is _____
- (43) If $2x + 5y = 2$ and $x - y = -6$, then $x =$ _____

- (44) If $|3x + 6| = 21$, $x < 0$, then $x =$ _____
- (45) The measure of an interior angle of a regular decagon is _____ $^{\circ}$
- (46) $S = \{1, 2, 5, 10, 17, 26, 37, k, 65\}$. $k =$ _____
- (47) $176^{\circ}\text{F} =$ _____ $^{\circ}\text{C}$
- (48) $642_7 - 246_7 =$ _____ $_7$
- (49) $17 \times \frac{15}{13} =$ _____ (mixed number)
- *(50) $89246 \div 253 =$ _____
- (51) $\frac{33}{40} =$ _____ (decimal)
- (52) The slope of the perpendicular bisector of a line segment with endpoints $(4, 7)$ and $(-5, 1)$ is _____
- (53) $100110111_2 =$ _____ $_8$
- (54) If $(2x - 5)^2 = ax^2 + bx + c$, then $a + c =$ _____
- (55) $(991)^2 =$ _____
- (56) How many positive integers less than or equal to 56 are relatively prime to 56? _____
- (57) $(708)^2 =$ _____
- (58) $\frac{11}{12} - \frac{34}{35} =$ _____
- (59) $64 \times 1111 =$ _____
- *(60) The volume of a cylinder with radius = 7 and height = 12 is _____
- (61) If the odds of losing is $\frac{2}{5}$, then the probability of winning is _____
- (62) $532_6 \div 4_6 =$ _____ $_6$
- (63) The probability of rolling two dice and getting a sum of 2, 3 or 4 is _____
- (64) If $45^8 \div 25 = (3^x)(5^y)$, then $x + y =$ _____
- (65) $6^x = 10\frac{2}{7}$, then $6^{(x-2)} =$ _____
- (66) If the roots of $x^3 + 4x^2 - 7x - 10 = 0$ are P, Q and R, then $PQR + P + Q + R =$ _____
- (67) $40 + 16 + \frac{32}{5} + \frac{64}{25} + \frac{128}{125} + \dots =$ _____
- (68) If the vertex of the parabola $y = x^2 + 8x - 2$ is (h, k) , then $k =$ _____
- (69) The first 4 digits of the decimal for $\frac{7}{30}$ is 0. _____
- *(70) $9 \times 18 \times 27 \times 36 =$ _____
- (71) $1 + \frac{1}{3} + \frac{1}{6} + \frac{1}{10} + \frac{1}{15} + \dots + \frac{1}{78} =$ _____
- (72) $997 \times 1002 =$ _____
- (73) If $146_b = 123$, then $53_b =$ _____
- (74) $\sqrt[3]{250047} =$ _____
- (75) $555_6 + 777_8 =$ _____ $_{10}$
- (76) $41^3 - 40^3 =$ _____
- (77) $(356_7) \times (6_7) =$ _____ $_7$
- (78) $5 + 1 + 6 + 7 + 13 + \dots + 86 + 139 =$ _____
- (79) If $(21)(37)(k) = 30303$, then $k =$ _____
- *(80) If 24 men can build 3 houses in 125 hours, how many minutes would it take 50 men to build 36 houses? _____

2019-2020 TMSCA MSNS Region Key

(1) 3996	(23) $\frac{7}{11}$	(44) -9	(63) $\frac{1}{6}$
(2) 1400	(24) 150	(45) 144	(64) 22
(3) $1\frac{1}{2}$	(25) 1050	(46) 50	(65) $\frac{2}{7}$
(4) $\frac{17}{20}$	(26) $50\frac{8}{21}$	(47) 80	(66) 6
(5) 1800	(27) $-\frac{21}{110}$	(48) 363	(67) $\frac{200}{3}$ or $66\frac{2}{3}$
(6) $87\frac{1}{3}$	(28) 561	(49) $19\frac{8}{13}$	(68) -18
(7) 500	(29) $2\frac{1}{2}$	*(50) 336-370	(69) 2333
(8) 8547	*(30) 447-493	(51) .825	*(70)149591-165337
(9) 144	(31) 8080	(52) $-\frac{3}{2}, -1\frac{1}{2}, -1.5$	(71) $1\frac{11}{13}$ or $\frac{24}{13}$
*(10) 5510-6088	(32) 2	(53) 467	(72) 998994
(11) 2736	(33) 308	(54) 29	(73) 48
(12) 11544	(34) 5.55	(55) 982081	(74) 63
(13) 1350	(35) 5	(56) 24	(75) 726
(14) 75	(36) 120	(57) 501264	(76) 4921
(15) 2046	(37) 234	(58) $-\frac{23}{420}$	(77) 3201
(16) 1650	(38) 93906	(59) 71104	(78) 363
(17) 112	(39) 189	*(60) 1755-1939	(79) 39
(18) 8	*(40) 150480-166320	(61) $\frac{5}{7}$	*(80) 41040-45360
(19) -2	(41) 30	(62) 122	
*(20) 167368-184984	(42) $1\frac{2}{5}, \frac{7}{5}, 1.4$		
(21) 12012	(43) -4		
(22) 3825			