

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

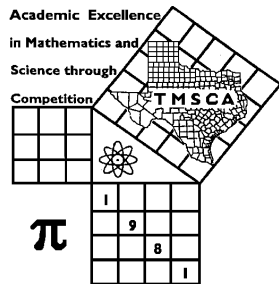
PLACE LABEL BELOW

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 #13 ©

FEBRUARY 29, 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 Test 13

- (1) $142 + 837 =$ _____
- (2) $6789 - 111 =$ _____
- (3) $\frac{11}{12} + \frac{1}{6} =$ _____ (mixed number)
- (4) $4535 \div 5 =$ _____
- (5) 35 is what percent of 50? _____ %
- (6) $72156 \div 9$ has a remainder of _____
- (7) $\frac{3}{4} =$ _____ %
- (8) $17^2 =$ _____
- (9) $759 \times 11 =$ _____
- *(10) $3214 + 788 - 125 =$ _____
- (11) $97 \times 89 =$ _____
- (12) The largest prime divisor of 68 is _____
- (13) $57 \times 63 =$ _____
- (14) Which is larger $\frac{11}{14}$ or $\frac{3}{4}$? _____
- (15) 44 minus 20% of 60 is _____
- (16) $324 \times 12 =$ _____
- (17) $74 \times 76 =$ _____
- (18) The sum of the prime numbers less than 10 is _____
- (19) $0.45 =$ _____ (fraction)
- *(20) $422 \times 773 =$ _____
- (21) $7\frac{5}{6} \times 6\frac{6}{7} =$ _____ (mixed number)
- (22) $300 = 16 \times 16 + k$. $k =$ _____
- (23) The simple interest on \$150 at 6% for 24 months is \$ _____
- (24) $0.3777\dots =$ _____ (fraction)
- (25) $146_7 =$ _____ base 10
- (26) $7 + 10 + 13 + 16 + 19 =$ _____
- (27) Two numbers have a sum of 20, a product of 96, and a difference of _____
- (28) $24 \times 5\frac{1}{8} =$ _____
- (29) $2 \text{ yd} + 2 \text{ ft} + 4 \text{ in} =$ _____ in
- *(30) $\sqrt{312268} =$ _____
- (31) $(12x + 3)^2 = ax^2 + bx + c$. $a + b + c =$ _____
- (32) $45 \times 111 =$ _____
- (33) $44 \times 75 =$ _____
- (34) $15\frac{1}{6}\% =$ _____ (fraction)
- (35) The fifteenth triangular number is _____
- (36) If $2x + y = 11$ and $3x - y = 9$, then $y =$ _____
- (37) $52^2 + 15^2 =$ _____
- (38) $59^2 =$ _____
- (39) $44^2 - 48^2 =$ _____
- *(40) $87654 \div 126 =$ _____
- (41) $S = \{a, b, c, d, e, f\}$ has _____ proper subsets
- (42) $2\frac{1}{4} - 1\frac{3}{8} =$ _____ (fraction)

- (43) A decagon has _____ distinct diagonals.
- (44) $\left(\frac{8}{5}\right)^2 =$ _____ (mixed number)
- (45) The negative reciprocal of 6.4 is _____
- (46) $(19 + 34 \times 51) \div 7$ has a remainder of _____
- (47) The sum of the solutions to $|2x - 6| = 9$ is _____
- (48) The distance between the points $(-2, 1)$ and $(6, -5)$ is _____
- (49) $18 + 15 + 12\frac{1}{2} + 10\frac{5}{12} + 8\frac{49}{72} + \dots =$ _____
- *(50) $(18)^4 =$ _____
- (51) $9^{-1} + 9^{-2} + 9^{-3} =$ _____ (fraction)
- (52) $18 \times \frac{17}{22} =$ _____ (mixed number)
- (53) If $3^{(x+y)} = 81$, then $(x + y)^4 =$ _____
- (54) $27 \times 303 =$ _____
- (55) $105 \times 97 =$ _____
- (56) If the diameter of a circle is 46 in, then the area of the circle is $k\pi \text{ in}^2$. $k =$ _____
- (57) $\frac{3}{7}$ of a gallon = _____ cubic inches
- (58) $(2\sqrt{7} \times 3\sqrt{7})^2 =$ _____
- (59) $1002 \times 1007 =$ _____
- *(60) The surface area of a sphere with radius = 6 is _____
- (61) $101111011_2 =$ _____₈
- (62) If $11^x = 5$, then $11^{(x+2)} =$ _____
- (63) $(442_6) \div (5_6) =$ _____₆
- (64) $\frac{5}{8} + \frac{5}{24} + \frac{5}{48} =$ _____ (fraction)
- (65) The sum of the 16th and 17th triangular numbers is _____
- (66) 135 mi/hr = _____ ft/sec
- (67) $2^4 \times 3^2 \times 5^2 =$ _____
- (68) If $f(x) = 2x^2 + 1$, then $f(f(3)) =$ _____
- (69) $56 \times 1111 =$ _____
- *(70) $\sqrt[3]{655231} =$ _____
- (71) $(415_8 \times 5_8) =$ _____₈
- (72) How many distinct 6-letter arrangements can be made from the letters of the set $\{b, e, t, t, e, r\}$? _____
- (73) Two dice are rolled. What are the odds that a sum of 6 was rolled? _____
- (74) $\frac{7}{8} - \frac{22}{23} =$ _____
- (75) The first 4 digits of the decimal for $\frac{11}{30}$ is 0. _____
- (76) The sum of the integral solutions of $|2x + 14| \leq 24$ is _____
- (77) $(259)(13)(k) = 40404$. $k =$ _____
- (78) $5 + 2 + 7 + 9 + 16 + \dots + 107 + 173 =$ _____
- (79) If x and y are positive integers and if $x^2 + y^2 = 180$, $x > y$, then $x + y =$ _____
- *(80) $8 \times 16 \times 24 \times 32 =$ _____

2019-2020 TMSCA MSNS Test 13 Key

(1) 979	(22) 44	(43) 35	(63) 54
(2) 6678	(23) 18.00	(44) $2\frac{14}{25}$	(64) $\frac{15}{16}$
(3) $1\frac{1}{12}$	(24) $\frac{17}{45}$	(45) $-\frac{5}{32}$	(65) 289
(4) 907	(25) 83	(46) 3	(66) 198
(5) 70	(26) 65	(47) 6	(67) 3600
(6) 3	(27) 4	(48) 10	(68) 723
(7) 75	(28) 123	(49) 108	(69) 62216
(8) 289	(29) 100	*(50) 99728–110224	*(70) 83–91
(9) 8349	*(30) 531–586	(51) $\frac{91}{729}$	(71) 2501
*(10) 3684–4070	(31) 225	(52) $13\frac{10}{11}$	(72) 180
(11) 8633	(32) 4995	(53) 256	(73) $\frac{5}{31}$
(12) 17	(33) 3300	(54) 8181	(74) $-\frac{15}{184}$
(13) 3591	(34) $\frac{91}{600}$	(55) 10185	(75) 3666
(14) $\frac{11}{14}$	(35) 120	(56) 529	(76) –175
(15) 32	(36) 3	(57) 99	(77) 12
(16) 3888	(37) 2929	(58) 1764	(78) 451
(17) 5624	(38) 3481	(59) 1009014	(79) 18
(18) 17	(39) –368	*(60) 430–475	*(80) 93389–103219
(19) $\frac{9}{20}$	*(40) 661–730	(61) 573	
*(20) 309896–342516	(41) 63	(62) 605	
(21) $53\frac{5}{7}$	(42) $\frac{7}{8}$		