

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

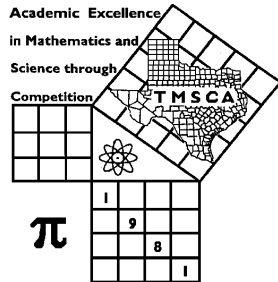
PLACE LABEL BELOW

Name: _____ School: _____

SS/ID Number: _____ City: _____

Grade: 5 6 7 8

Classification: 1A 2A 3A 4A 5A 6A



**TMSCA MIDDLE SCHOOL
NUMBER SENSE**

TEST #9 ©

JANUARY 28, 2017

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.

2016-2017 TMSCA Middle School Number Sense Test #9

- (1) $2017 + 2018 =$ _____
- (2) $13 \times 9 =$ _____
- (3) $\frac{3}{5} =$ _____ %
- (4) $154530 \div 15 =$ _____
- (5) $24 \times 25 =$ _____
- (6) $36 \times 11 =$ _____
- (7) $\frac{5}{8} + \frac{3}{4} - \frac{1}{2} =$ _____ (fraction)
- (8) $16^2 =$ _____
- (9) $10 \times 3 + 14 \div 2 =$ _____
- *(10) $137 + 1483 + 2627 =$ _____
- (11) $42 \times 50 =$ _____
- (12) 4 feet + 3 inches = _____ inches
- (13) $29 \times 89 =$ _____
- (14) $48 \times 125 =$ _____
- (15) $12\frac{1}{3}\% =$ _____ (fraction)
- (16) $\frac{14}{11} \times 77 =$ _____
- (17) $18 \times 24 + 18 \times 16 =$ _____
- (18) $1 + 2 + 3 + 4 + \dots + 39 =$ _____
- (19) MMXVII = _____ (Arabic number)
- *(20) $453 \times 448 =$ _____
- (21) $99 \times 93 =$ _____
- (22) $\frac{3}{7} + \frac{7}{3} =$ _____ (mixed number)
- (23) $15 + 13 + 11 + 9 + \dots + 1 =$ _____
- (24) $5^3 =$ _____
- (25) $75 \times 44 =$ _____
- (26) $12 \times 28 =$ _____
- (27) How many prime numbers are between 35 and 45? _____
- (28) The greatest common factor of 45 and 75 is _____
- (29) $119 \times 103 =$ _____
- *(30) 49% of 699 = _____
- (31) Angles X and Y form a linear pair, and X has measure 147° , then measure Y = _____ $^\circ$
- (32) $84 \times 86 =$ _____
- (33) $11\frac{3}{5} \times 11\frac{2}{5} =$ _____ (mixed number)
- (34) 28 has how many distinct prime divisors? _____
- (35) 28 has how many positive integral divisors? _____
- (36) The sum of the positive integral divisors of 15 is _____
- (37) $24^2 - 6^2 =$ _____
- (38) $21^2 + 63^2 =$ _____
- (39) If $x = 3$ and $y = 7$, then $4x + 6y =$ _____
- *(40) $31^3 =$ _____
- (41) 15% of 72 = _____ (decimal)
- (42) $\frac{2}{5} + \frac{4}{5} + \frac{6}{5} + \frac{8}{5} + \dots + \frac{18}{5} =$ _____
- (43) The area of a rectangle with base 17 and height 23 is _____

- (44) The area of a square with diagonal 12 is _____
- (45) $\sqrt{7921} =$ _____
- (46) If $f(x) = \sqrt{11x+4}$, then $f(7) =$ _____
- (47) If $2 + 4 + 6 + 8 + \dots + 28 = 14x$, then $x =$ _____
- (48) How many distinct diagonals can be drawn inside an undecagon? _____
- (49) The sum of the interior angles of a octagon is _____ °
- *(50) $667 \times 329 =$ _____
- (51) $23 \times \frac{23}{20} =$ _____ (mixed number)
- (52) $18 \times \frac{21}{23} =$ _____ (mixed number)
- (53) $47_8 =$ _____₁₀
- (54) The 19th triangular number is _____
- (55) The harmonic mean of 4 and 5 is _____
- (56) The arithmetic mean of the smallest 5 prime numbers is _____
- (57) $43(\text{base } 6) + 45(\text{base } 6) =$ _____ (base 6)
- (58) $2^6 \div 9$ has a remainder of _____
- (59) $\sqrt[3]{\frac{343}{27}} =$ _____ (mixed number)
- *(60) The 30th pentagonal number is _____
- (61) $6^3 \div 1.5^3 =$ _____
- (62) How many digits are in the expansion of $2^6 \times 3^3 \times 5^4$? _____
- (63) $235 \times 111 =$ _____
- (64) $94 \times 108 =$ _____
- (65) $0.13333\dots =$ _____ (fraction)
- (66) A set with n elements has 10 subsets with 2-elements, $n =$ _____
- (67) If $(mx + n)(qx + p) = 6x^2 - 17x - 11$, where $m, n, q,$ and p are constants, then $mnqp =$ _____
- (68) Given $118^2 = 13924$, then $115 \times 121 =$ _____
- (69) $32_5 \times 4_5 =$ _____₅
- *(70) The surface area of a sphere with radius 10 is _____
- (71) P and Q are positive roots of $9x^2 - 38x + 25 = 0$. The geometric mean of P and Q is _____
- (72) If $f(x) = 2x + 5$, then $f(18) - f(14) =$ _____
- (73) What is the probability of obtaining a sum of two 6-sided die to be between 4 and 6 inclusive? _____
- (74) Find the area of a trapezoid with bases 14 and 20 and a height of 5. _____
- (75) $1^3 + 2^3 + 3^3 + 4^3 + 5^3 =$ _____
- (76) The number of ways to arrange 7 people in a circle is _____
- (77) $837 \times 101 =$ _____
- (78) If $9^x = 55$, then $9^{x+1} =$ _____
- (79) If k is an integer, then $i^{4k+6} =$ _____
- *(80) 1 non-leap year = _____ hours

2016-2017 TMSCA Middle School Number Sense Key #9

- | | | | |
|-----------------------|------------------------|--|--------------------------------------|
| (1) 4035 | (23) 64 | (44) 72 | (63) 26085 |
| (2) 117 | (24) 125 | (45) 89 | (64) 10152 |
| (3) 60 | (25) 3300 | (46) 9 | (65) $\frac{2}{15}$ |
| (4) 10302 | (26) 336 | (47) 15 | (66) 5 |
| (5) 600 | (27) 3 | (48) 44 | (67) - 66 |
| (6) 396 | (28) 15 | (49) 1080 | (68) 13915 |
| (7) $\frac{7}{8}$ | (29) 12257 | *(50) 208471 - 230415 | (69) 233 |
| (8) 256 | *(30) 326 - 359 | (51) $26\frac{9}{20}$ | *(70) 1194 - 1319 |
| (9) 37 | (31) 33 | (52) $16\frac{10}{23}$ | (71) $\frac{5}{3}$ or $1\frac{2}{3}$ |
| *(10) 4035 - 4459 | (32) 7224 | (53) 39 | (72) 8 |
| (11) 2100 | (33) $132\frac{6}{25}$ | (54) 190 | (73) $\frac{1}{3}$ |
| (12) 51 | (34) 2 | (55) $4\frac{4}{9}$ or $\frac{40}{9}$ | (74) 85 |
| (13) 2581 | (35) 6 | (56) $5.6, 5\frac{3}{5}$ or $\frac{28}{5}$ | (75) 225 |
| (14) 6000 | (36) 24 | (57) 132 | (76) 720 |
| (15) $\frac{37}{300}$ | (37) 540 | (58) 1 | (77) 84537 |
| (16) 98 | (38) 4410 | (59) $2\frac{1}{3}$ | (78) 495 |
| (17) 720 | (39) 54 | *(60) 1269 - 1401 | (79) - 1 |
| (18) 780 | *(40) 28302 - 31280 | (61) 64 | *(80) 8322 - 9198 |
| (19) 2017 | (41) 10.8 | (62) 7 | |
| *(20) 192797 - 213091 | (42) 18 | | |
| (21) 9207 | (43) 391 | | |
| (22) $2\frac{16}{21}$ | | | |