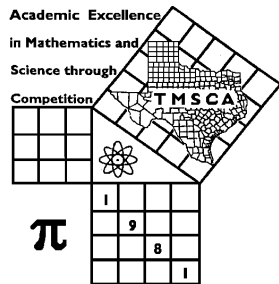


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 5	6	7	8
Classification: 1A		2A	3A 4A 5A 6A



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
TEST #1 ©
OCTOBER 21, 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.

2017-2018 TMSCA Middle School Number Sense Test #1

- (1) $2018 + 2019 =$ _____
- (2) $23 \times 40 =$ _____
- (3) $\frac{3}{8} =$ _____ % (mixed number)
- (4) $2018 \times 6 =$ _____
- (5) $3214 \div 5$ has a remainder of _____
- (6) $11 \times 98 =$ _____
- (7) $25 \times 68 =$ _____
- (8) $12 \times 52 =$ _____
- (9) $1 + 2 + 3 \times 4 - 5 =$ _____
- *(10) $2018 + 2017 + 2016 + 2015 + 2014 =$ _____
- (11) Which of the following is greater, 0.77 or $\frac{4}{5}$? _____
- (12) 2 gallon - 3 quarts = _____ quarts
- (13) $36 \times 21 + 14 \times 21 =$ _____
- (14) $19^2 =$ _____
- (15) $16 \times 75 =$ _____
- (16) $\frac{7}{5} + \frac{5}{7} =$ _____ (mixed number)
- (17) $87 \times 83 =$ _____
- (18) $42 \times 16\frac{2}{3} =$ _____
- (19) How many digits are in 13^3 ? _____
- *(20) $968 \times 172 =$ _____
- (21) $9.7 \times 9.2 =$ _____ (decimal)
- (22) $45 \times 1\frac{1}{3} =$ _____
- (23) 14 more than 60% of 60 is _____
- (24) The sum of the primes between 30 and 40 is _____
- (25) $29^2 - 21^2 =$ _____
- (26) The GCF of 32 and 24 is _____
- (27) The LCM of 32 and 24 is _____
- (28) If 8 pencils cost \$1.25, then 8 dozen pencils cost \$ _____
- (29) $109 \times 103 =$ _____
- *(30) $324173 \div 648 =$ _____
- (31) $15^2 + 45^2 =$ _____
- (32) $20\frac{3}{5} \times 20\frac{2}{5} =$ _____ (mixed number)
- (33) $2 + 4 + 6 + \dots + 26 =$ _____
- (34) 45 has how many positive integral divisors? _____
- (35) $1 + 3 + 5 + \dots + 47 =$ _____
- (36) The sum of the positive integral divisors of 45 is _____
- (37) How many positive perfect squares are less than 500? _____
- (38) 43 base 7 is equivalent to _____ in base 10
- (39) If $f(x) = 3x^2 - 8x + 7$, then $f(5) =$ _____
- *(40) $\sqrt{449999} =$ _____
- (41) If $\frac{3x-13}{4} = 7$, then $x =$ _____ (improper fraction)
- (42) Find the area of a rectangle with perimeter 42 and length 18. _____ units²
- (43) $9^3 =$ _____
- (44) $\sqrt{2601} =$ _____

- (45) $11 \times \frac{3}{4} =$ _____ (mixed number)
- (46) $(2 + 4 + 6 + \dots + 24) - (1 + 3 + 5 + \dots + 23) =$ _____
- (47) If $f(x) = \frac{15}{x^2 - 5}$, then $f(5) =$ _____ (fraction)
- (48) A regular octagon has an interior angle of measure _____ degrees
- (49) A square of area 20. Its perimeter is $a\sqrt{b}$, where b has no perfect square divisor greater than 1, $a + b =$ _____
- *(50) $19^2 \times 21^2 =$ _____
- (51) $17 \times \frac{17}{14} =$ _____ (mixed number)
- (52) $17 \times \frac{19}{22} =$ _____ (mixed number)
- (53) Let $f(x) = 3x + 14$, then $f(44) - f(40) =$ _____
- (54) Let $f(x) = x^2$, then $f(14) - f(6) =$ _____
- (55) In an isosceles trapezoid one of the base angles is 67° . The sum of the two largest angles in the trapezoid is _____ $^\circ$
- (56) $43_8 + 16_8 =$ _____₈
- (57) A cube with volume of 1728 has edge of _____ units
- (58) $(2 + 7^4) \div 5$ has a remainder of _____
- (59) $98 \times 108 =$ _____
- *(60) The length of the diagonal of the face of a cube with edge 500 is _____
- (61) The set $\{c, l, e, m, o, n, s\}$ has how many 2-element subsets? _____
- (62) If $2x - 5 > 24$, then the smallest integer solution of x is _____
- (63) $11^2 + 22^2 + 33^2 = 11^2 k$ and $k =$ _____
- (64) $0.363636\dots =$ _____ (fraction)
- (65) Find the slope of a line with x-intercept 5 and y-intercept 2. _____
- (66) Find the slope of the line $y - 3 = m(x - 4)$ if it passes through (12, 7). _____
- (67) The sum of the solutions of $|x - 4| = 7.2$ is _____
- (68) The sum of the infinite geometric series $4 + 1 + 0.25 + 0.0625 + \dots$ is _____
- (69) How many positive integers less than or equal to 18 are relatively prime to 18? _____
- *(70) $103 \times 104 \times 105 =$ _____
- (71) If P and Q are roots of $3x^2 + 19x + c = 0$, and $PQ = -4$, then $c =$ _____
- (72) If $f(x) = 2x^2 + 3$, then $f(x - 5)$ has an axis of symmetry of $x =$ _____
- (73) Find the probability of rolling a sum of 10 when rolling two 6-sided die. _____
- (74) How many distinct five letter arrangements can be made from $\{m, a, m, a, s\}$? _____
- (75) If $4! + 6! = k \times 4!$, then $k =$ _____
- (76) $407^2 =$ _____
- (77) 24% of 90 is 72% of _____
- (78) 110 feet per second = _____ miles per hour
- (79) If $\log_4 x = 3$, then $x =$ _____
- *(80) Find the volume of a rectangular prism of size 18 by 15 by 333. _____ units³

2017-2018 TMSCA Middle School Number Sense Key #1

- | | | | |
|-----------------------|------------------------|------------------------|---------------------------------------|
| (1) 4037 | (24) 68 | (45) $8\frac{1}{4}$ | (63) 14 |
| (2) 920 | (25) 400 | (46) 12 | (64) $\frac{4}{11}$ |
| (3) $37\frac{1}{2}$ | (26) 8 | (47) $\frac{3}{4}$ | (65) $-.4$ or $-\frac{2}{5}$ |
| (4) 12108 | (27) 96 | (48) 135 | (66) $.5$ or $\frac{1}{2}$ |
| (5) 4 | (28) 15.00 | (49) 13 | (67) 8 |
| (6) 1078 | (29) 11227 | (50) 151241 – 167161 | (68) $5\frac{1}{3}$ or $\frac{16}{3}$ |
| (7) 1700 | *(30) 476 – 525 | (51) $20\frac{9}{14}$ | (69) 6 |
| (8) 624 | (31) 2250 | (52) $14\frac{15}{22}$ | *(70) 1068522 – 1180998 |
| (9) 10 | (32) $420\frac{6}{25}$ | (53) 12 | (71) – 12 |
| *(10) 9576 – 10584 | (33) 182 | (54) 160 | (72) 5 |
| (11) $\frac{4}{5}$ | (34) 6 | (55) 226 | (73) $\frac{1}{12}$ |
| (12) 5 | (35) 576 | (56) 61 | (74) 30 |
| (13) 1050 | (36) 78 | (57) 12 | (75) 31 |
| (14) 361 | (37) 22 | (58) 3 | (76) 165649 |
| (15) 1200 | (38) 31 | (59) 10584 | (77) 30 |
| (16) $2\frac{4}{35}$ | (39) 42 | *(60) 672 - 742 | (78) 75 |
| (17) 7221 | *(40) 638 – 704 | (61) 21 | (79) 64 |
| (18) 700 | (41) $\frac{41}{3}$ | (62) 15 | *(80) 85415 – 94405 |
| *(20) 158172 – 174820 | (42) 54 | | |
| (21) 89.24 | (43) 729 | | |
| (22) 60 | (44) 51 | | |
| (23) 50 | | | |