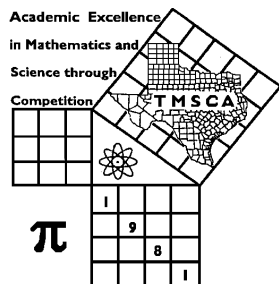


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 5	6	7	8
Classification: 1A		2A	3A 4A 5A 6A



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
TEST #11 ©
FEBRUARY 11, 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 11

- (1) $2017 \times 11 =$ _____
- (2) $28 \times 8 =$ _____
- (3) $9636 \div 12 =$ _____
- (4) Find the remainder when 2017 is divided by 9. _____
- (5) $0.325 =$ _____ (fraction)
- (6) $30 + 33 + 36 + 39 + 42 =$ _____
- (7) $\frac{5}{9} - \frac{2}{5} =$ _____ (fraction)
- (8) $(12^2 - 1) \div (4 \times 3 + 1) =$ _____
- (9) $\frac{9}{17} \times 85 =$ _____
- *(10) $325 + 2016 + 2017 + 2018 =$ _____
- (11) $65 \times 34 =$ _____
- (12) 4 pounds + 7 ounces = _____ ounces
- (13) $66 \times 46 =$ _____
- (14) $19^2 =$ _____
- (15) $36 \times 33 \frac{1}{3} =$ _____
- (16) $\frac{1+3+5+\dots+33+35}{1+3+5+7+9+11} =$ _____
- (17) $115^2 =$ _____
- (18) $23 \times 52 - 12 \times 52 =$ _____
- (19) $113 \times 107 =$ _____
- *(20) $48 \times 517 =$ _____
- (21) $1.6 \times 1.6 =$ _____ (decimal)
- (22) $9984 = 96 \times$ _____
- (23) $11^3 =$ _____
- (24) $12 \times 4 \frac{2}{3} =$ _____
- (25) The sum of the smallest 14 positive even integers is _____
- (26) $8 \times 5 \div 12 + 8 \times 4 \div 12 =$ _____
- (27) The multiplicative inverse of 0.625 is _____ (mixed number)
- (28) $(40 + 3)(40 - 3) =$ _____
- (29) 42 has how many distinct prime divisors? _____
- *(30) 86% of 1098 is _____
- (31) Find the area of a triangle with sides of 7, 24, and 25 is _____
- (32) $k^2 - 18^2 = 64 \times 100$ and $k > 0$, then $k =$ _____
- (33) $17 \times 17 + 34 \times 34 =$ _____
- (34) The smallest 2-digit number, when divided by 6, 9, or 12, that gives a remainder of 1 is _____.
- (35) 96 has how many positive integral divisors? _____
- (36) The mean of the first 12 even numbers is _____
- (37) $\frac{13}{10} + \frac{10}{13} =$ _____ (mixed number)
- (38) $14 \frac{3}{8} \times 14 \frac{5}{8} =$ _____ (mixed number)
- (39) If $f(x) = x^2 + 12x + 36$, then $f(17) =$ _____
- *(40) 2017 gallons = _____ ounces
- (41) A set with 256 subsets has _____ elements
- (42) If $x = 4$ and $y = 7$, then $4x^2 + 4xy + y^2 =$ _____
- (43) $587 \times 111 =$ _____
- (44) $923 \times 101 =$ _____

- (45) An interior angle of a regular nonagon has a measure of _____°
- (46) A polygon with 44 diagonals has _____ sides
- (47) $83^2 + 22^2 =$ _____
- (48) A regular polygon with an exterior angle of 20° and a side of 5 has a perimeter of _____
- (49) The smaller solution of $|3x + 2| = 13$ is _____
- *(50) Find the volume a rectangular solid of edges 34, 36, and 50. _____
- (51) A set with 12 elements has how many 2-element subsets? _____
- (52) $14 \times \frac{16}{19} =$ _____ (mixed number)
- (53) $12\frac{1}{5} \times 8\frac{1}{5} =$ _____ (mixed number)
- (54) The area of an equilateral triangle with side 14 is $k\sqrt{3}$, $k =$ _____
- (55) A quadrilateral has angles in arithmetic progression. If the largest angle is 135° , then the largest remaining angle = _____°
- (56) If $f(x) = 9x + 13$, then $f(11) - f(3) =$ _____
- (57) $83(\text{base } 9) =$ _____ (base 10)
- (58) The slope of a line with x-intercept 5 and y-intercept of 8 is _____
- (59) $(32_7)^2 =$ _____
- *(60) The side of a square with area 45700 is _____
- (61) If $x < 0$ and $x^2 = 81$, then $x^3 =$ _____
- (62) $95 \times 105 =$ _____
- (63) What is the 9th triangular number? _____
- (64) The sum of the infinite geometric series, $5 + 2.5 + 1.25 + 0.625 + \dots =$ _____
- (65) $0.625 \times 120 =$ _____
- (66) $\frac{9!}{7!} + \frac{7!}{9!} =$ _____ (mixed number)
- (67) If $2x - 3 < 27$ and $2x - 3 > 7$, then x has how many positive integer solutions? _____
- (68) If P and Q are roots of $-3x^2 - 17x + 11 = 0$, then $P + Q =$ _____
- (69) $1_7 + 2_7 + 3_7 + 4_7 + 5_7 + 6_7 =$ _____
- *(70) $\sqrt{575} \times \sqrt{675} =$ _____
- (71) If the line $4x + 3y = 48$ has an x-intercept of (a,0) and a y-intercept of (0, b). $a + b =$ _____
- (72) The sum of the coefficients of $(8x - 3)^4$ is _____
- (73) $998^2 =$ _____
- (74) Find area of a rhombus with a side of $8\sqrt{3}$ and one angle of 30° . _____
- (75) If $f(x)$ is a parabola with a vertex of (5, -3), and $g(x) = -5f(x - 1) + 2$, and $g(x)$ has a vertex of (h,k), then $k =$ _____
- (76) If $f(x) = 3x(x^2 - 5x + 7)$, then $f(x)$ has how many real roots? _____
- (77) If $2^x = P$, $5^x = Q$ and $5000^x = P^r Q^s$, then $r + s =$ _____
- (78) $(36)^{\frac{3}{2}} =$ _____
- (79) $37 \times 63 =$ _____
- *(80) The surface area of a sphere with a radius of 15 cm is _____ cm^3

2016-2017 TMSCA Middle School Number Sense Key #11

- | | | | |
|----------------------|-------------------------|--|---|
| (1) 22187 | (24) 56 | (45) 140 | (64) 10 |
| (2) 224 | | | |
| (3) 803 | (25) 210 | (46) 11 | (65) 75 |
| (4) 1 | (26) 6 | (47) 7373 | (66) $72\frac{1}{72}$ |
| (5) $\frac{13}{40}$ | (27) $1\frac{3}{5}$ | (48) 90 | (67) 9 |
| (6) 180 | | (49) - 5 | |
| (7) $\frac{7}{45}$ | (28) 1591 | * (50) 58140 - 64260 | (68) $-\frac{17}{3}$ or $-5\frac{2}{3}$ |
| (8) 11 | (29) 3 | (51) 66 | (69) 30 |
| (9) 45 | * (30) 898 - 991 | (52) $11\frac{15}{19}$ | * (70) 592 - 654 |
| * (10) 6058 - 6694 | (31) 84 | (53) $100\frac{1}{25}$ | (71) 28 |
| (11) 2210 | (32) 82 | | (72) 625 |
| (12) 71 | (33) 1445 | (54) 49 | (73) 996004 |
| (13) 3036 | (34) 37 | | |
| (14) 361 | (35) 12 | (55) 105 | (74) 96 |
| (15) 1200 | (36) 13 | (56) 72 | |
| (16) 9 | (37) $2\frac{9}{130}$ | (57) 75 | (75) 17 |
| (17) 13225 | (38) $210\frac{15}{64}$ | (58) $-\frac{8}{5}, -1\frac{3}{5}$ or -1.6 | (76) 1 |
| (18) 572 | (39) 529 | (59) 1354 | (77) 7 |
| (19) 12091 | * (40) 245268 - 271084 | * (60) 204 - 224 | (78) 216 |
| * (20) 23576 - 26056 | (41) 8 | (61) - 729 | (79) 2331 |
| (21) 2.56 | (42) 225 | (62) 9975 | |
| (22) 104 | (43) 65157 | (63) 45 | * (80) 2687 - 2968 |
| (23) 1331 | (44) 93223 | | |