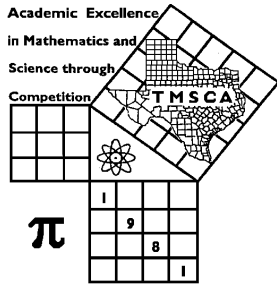


1st Score: _____	2nd Score: _____	3rd Score: _____	<b>Final Score</b>
Grader: _____	Grader: _____	Grader: _____	
<b>PLACE LABEL BELOW</b>			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 5	6	7	8
Classification: 1A		2A	3A 4A 5A 6A



**TMSCA MIDDLE SCHOOL  
NUMBER SENSE  
TEST #10 ©  
FEBRUARY 4, 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 10

- (1)  $325 \div 5 =$  \_\_\_\_\_
- (2)  $36 \times 7 =$  \_\_\_\_\_
- (3)  $40 - 36 + 32 - 28 + 24 =$  \_\_\_\_\_
- (4)  $2017 \times 50 =$  \_\_\_\_\_
- (5)  $0.555\dots =$  \_\_\_\_\_ (fraction)
- (6)  $98765 \div 3$  has a remainder of \_\_\_\_\_
- (7)  $\frac{3}{8} =$  \_\_\_\_\_ (decimal)
- (8)  $(9^2 - 1) \div (3^2 - 1) =$  \_\_\_\_\_
- (9)  $\frac{13}{4} \times 100 =$  \_\_\_\_\_
- \*(10)  $2017 - 923 + 1487 =$  \_\_\_\_\_
- (11)  $23 \times 45 =$  \_\_\_\_\_
- (12)  $14 \text{ yards} + 7 \text{ feet} =$  \_\_\_\_\_ feet
- (13)  $98 \times 87 =$  \_\_\_\_\_
- (14)  $37 \times 77 =$  \_\_\_\_\_
- (15)  $128 \times 12 \frac{1}{2} =$  \_\_\_\_\_
- (16)  $\frac{11+12+13+14+15+16+17}{7} =$  \_\_\_\_\_
- (17)  $125^2 =$  \_\_\_\_\_
- (18)  $34 \times 52 + 34 \times 18 =$  \_\_\_\_\_
- (19) What is the largest number that divides into 36, 44, and 60 without a remainder? \_\_\_\_\_
- \*(20)  $833.333 \times 961 =$  \_\_\_\_\_
- (21)  $529 \div 23 =$  \_\_\_\_\_
- (22)  $107 \times 109 =$  \_\_\_\_\_
- (23)  $2491 = 53 \times$  \_\_\_\_\_
- (24)  $15 \times 6 \frac{1}{3} =$  \_\_\_\_\_
- (25) The sum of the smallest 13 odd integers is \_\_\_\_\_
- (26)  $(12 \times 3 + 12 \times 17) \div 6 =$  \_\_\_\_\_
- (27) The additive inverse of 13.2 is \_\_\_\_\_
- (28)  $(30 + 4)(30 - 4) =$  \_\_\_\_\_
- (29) The perimeter of a square with area 12.25 is \_\_\_\_\_
- \*(30) 43.1% of 2499 = \_\_\_\_\_
- (31) Find the area of a triangle with sides of 12, 16, and 20 is \_\_\_\_\_
- (32) 100 has how many positive integral divisors? \_\_\_\_\_
- (33)  $11 \frac{1}{5} \times 11 \frac{4}{5} =$  \_\_\_\_\_ (mixed number)
- (34)  $16^2 + 48^2 =$  \_\_\_\_\_
- (35) What is the greatest common divisor of 15 and 48? \_\_\_\_\_
- (36)  $23_8 =$  \_\_\_\_\_<sub>10</sub>
- (37)  $12 \times \frac{7}{10} =$  \_\_\_\_\_ (mixed number)
- (38) The sum of the two largest angles in a parallelogram with one angle of  $75^\circ$  is \_\_\_\_\_ $^\circ$
- (39) If  $f(x) = 25x + 13$ , then  $f(12) =$  \_\_\_\_\_
- \*(40)  $483 \times 487 =$  \_\_\_\_\_
- (41) How many subsets does the set {t,m,s,c,a,r,e,g} have? \_\_\_\_\_
- (42) If  $5 + 10 + 15 + 20 + \dots + 60 = 5k$ , then  $k =$  \_\_\_\_\_

- (43)  $22 \times \frac{2}{9} =$  \_\_\_\_\_ (mixed number)
- (44) The area of a square with diagonal  $3\sqrt{6}$  is \_\_\_\_\_
- (45) The median of 1, 1, 2, 3, 5, 8, 13, 21 is \_\_\_\_\_
- (46) The 11<sup>th</sup> term of the arithmetic sequence 14, 23, 32, 41, ... is \_\_\_\_\_
- (47) If  $f(x) = x^2 - 8x + 16$ , then  $f(29) =$  \_\_\_\_\_
- (48) Find the slope of a line perpendicular to  $2x - 5y = 17$ . \_\_\_\_\_
- (49)  $134_8 =$  \_\_\_\_\_<sub>10</sub>
- \*(50)  $\sqrt[3]{125 \times 132 \times 140} =$  \_\_\_\_\_
- (51)  $18\frac{1}{7} \times 10\frac{1}{7} =$  \_\_\_\_\_ (mixed number)
- (52)  $11 \times \frac{13}{16} =$  \_\_\_\_\_ (mixed number)
- (53) A set with 40 elements has how many 2-element subsets? \_\_\_\_\_
- (54) An equilateral triangle with side 7 has area  $k\sqrt{3}$ ,  $k =$  \_\_\_\_\_ (improper fraction)
- (55)  $3 - \left(\frac{3}{4} + \frac{4}{3}\right) =$  \_\_\_\_\_ (fraction)
- (56) If  $4x - 15 > 14$ , then the smallest integer solution of  $x$  is \_\_\_\_\_
- (57)  $82(\text{base } 9) - 34(\text{base } 9) =$  \_\_\_\_\_ (base 9)
- (58)  $8\sqrt{8} \times 3\sqrt{2} =$  \_\_\_\_\_
- (59) How many distinct diagonals can be drawn inside a 14-sided polygon? \_\_\_\_\_
- \*(60) A square with area 15000 has side \_\_\_\_\_
- (61)  $9 + 3 + 1 + \dots =$  \_\_\_\_\_
- (62)  $95 \times 35 =$  \_\_\_\_\_
- (63) What is the 11<sup>th</sup> triangular number? \_\_\_\_\_
- (64) If four times a number is the same as the sum of the number and 12, then the number is \_\_\_\_\_
- (65)  $(14, )^2 =$  \_\_\_\_\_<sub>9</sub>
- (66) The side length of a rhombus with diagonals 12 and 16 is \_\_\_\_\_
- (67) The sum of the positive integral divisors of 21 is \_\_\_\_\_
- (68) If P and Q are roots of  $6x^2 - 17x - 10 = 0$ , then  $P + Q =$  \_\_\_\_\_
- (69)  $44_5 \div 3_5 =$  \_\_\_\_\_<sub>5</sub>
- \*(70)  $\sqrt{378} \times \sqrt{460} =$  \_\_\_\_\_
- (71) If the x-intercept of  $4x - 5y = k$  is (5, 0), then the ordinate of the y-intercept is \_\_\_\_\_
- (72) The sum of the coefficients of  $(7x - 3)^2$  is \_\_\_\_\_
- (73)  $904^2 =$  \_\_\_\_\_
- (74) The number of elements in  $\{2,3,5,7,11\} \cap \{1,3,5,7,9,11\}$  is \_\_\_\_\_
- (75)  $\frac{1}{42} + \frac{1}{56} + \frac{1}{72} =$  \_\_\_\_\_ (fraction)
- (76) The discriminant of  $2x^2 + 3x - 4 = 0$  is \_\_\_\_\_
- (77) If  $3x - 2y = 11$  and  $x + y = 4.5$ , then  $x =$  \_\_\_\_\_
- (78)  $16^{1.25} =$  \_\_\_\_\_
- (79)  $\frac{1+3+5+\dots+35}{1+3+5+\dots+11} =$  \_\_\_\_\_
- \*(80) 560 square miles = \_\_\_\_\_ acres

## 2016-2017 TMSCA Middle School Number Sense Key #10

- |                       |   |  |                                       |
|-----------------------|---|--|---------------------------------------|
| (1) 65                | (22) 11663                                      | (43) $4\frac{8}{9}$                          | (62) 3325                             |
| (2) 252               | (23) 47   | (44) 27                                      | (63) 66                               |
| (3) 32                | (24) 95   | (45) 4                                       | (64) 4                                |
| (4) 100850            | (25) 169  | (46) 104                                     | (65) 207                              |
| (5) $\frac{5}{9}$     | (26) 40   | (47) 625                                     | (66) 10                               |
| (6) 2                 | (27) $-13.2, -13\frac{1}{5}$ or $\frac{-66}{5}$ | (48) $-2.5, -2\frac{1}{2}$ or $\frac{-5}{2}$ | (67) 32                               |
| (7) .375              | (28) 884  | (49) 92                                      | (68) $\frac{17}{6}$ or $2\frac{5}{6}$ |
| (8) 10                | (29) 14   | (50) 126 – 138                               | (69) 13                               |
| (9) 325               | *(30) 1024 – 1130                               | (51) $184\frac{1}{49}$                       | *(70) 397 – 437                       |
| *(10) 2452 – 2710     | (31) 96   | (52) $8\frac{15}{16}$                        | (71) – 4                              |
| (11) 1035             | (32) 9  | (53) 780                                     | (72) 16                               |
| (12) 49               | (33) $132\frac{4}{25}$                          | (54) $\frac{49}{4}$                          | (73) 817216                           |
| (13) 8526             | (34) 2560                                       | (55) $\frac{11}{12}$                         | (74) 4                                |
| (14) 2849             | (35) 3  | (56) 8                                       | (75) $\frac{1}{18}$                   |
| (15) 1600             | (36) 19   | (57) 47                                      | (76) 41                               |
| (16) 14               | (37) $8\frac{2}{5}$                             | (58) 96                                      | (77) 4                                |
| (17) 15625            | (38) 210  | (59) 77                                      | (78) 32                               |
| (18) 2380             | (39) 313  | *(60) 117 – 128                              | (79) 9                                |
| (19) 4                | *(40) 223460 – 246982                           | (61) $13.5, 13\frac{1}{2}$ or $\frac{27}{2}$ | *(80) 340480 – 376320                 |
| *(20) 760792 – 840874 | (41) 256  |  |                                       |
| (21) 23               | (42) 78   |  |                                       |