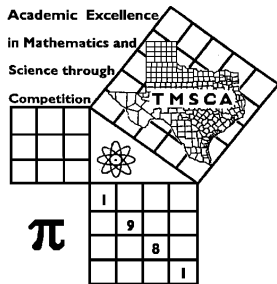


1st Score: _____	2nd Score: _____	3rd Score: _____	<b>Final Score</b>
Grader: _____	Grader: _____	Grader: _____	
<b>PLACE LABEL BELOW</b>			
Name: _____ School: _____			
SS/ID Number: _____ City: _____			
Grade:    5    6    7    8                      Classification:    1A    2A    3A    4A    5A  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



## TMSCA MIDDLE SCHOOL NUMBER SENSE

TEST #10 ©

FEBRUARY 6, 2016

### 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.



## 2015-2016 TMSCA Middle School Number Sense Test #10

- (1)  $972 - 279 =$  \_\_\_\_\_
- (2)  $50 - 46 + 51 - 47 + 52 - 48 =$  \_\_\_\_\_
- (3)  $19 \times 12 =$  \_\_\_\_\_
- (4)  $968 \div 8 =$  \_\_\_\_\_
- (5)  $93 \times 11 =$  \_\_\_\_\_
- (6)  $0.9 =$  \_\_\_\_\_ (fraction)
- (7)  $71235 \div 4$  has a remainder of \_\_\_\_\_
- (8)  $\frac{9}{20} =$  \_\_\_\_\_ (decimal)
- (9)  $11 \div 2 + 9 - 3 \div 2 =$  \_\_\_\_\_
- \*(10)  $918 - 2951 + 4368 =$  \_\_\_\_\_
- (11)  $15 \times 34 =$  \_\_\_\_\_
- (12)  $16\frac{2}{3} \times 84 =$  \_\_\_\_\_
- (13)  $74 \times 34 =$  \_\_\_\_\_
- (14)  $94 \times 97 =$  \_\_\_\_\_
- (15)  $22^2 =$  \_\_\_\_\_
- (16)  $\frac{7}{10} + \frac{3}{5} =$  \_\_\_\_\_ (mixed number)
- (17) Which of  $\frac{5}{8}$  or  $\frac{11}{18}$  is smaller? \_\_\_\_\_
- (18)  $68 \times 25 =$  \_\_\_\_\_
- (19) What is the GCD of 18 and 30? \_\_\_\_\_
- \*(20)  $333.333 \times 631 =$  \_\_\_\_\_
- (21)  $9016 = 98 \times$  \_\_\_\_\_
- (22)  $111 \times 394 =$  \_\_\_\_\_
- (23) What is the smallest positive number that has a remainder of 0 when divided by 3, 4, and 5? \_\_\_\_\_
- (24)  $13 \times 6\frac{9}{13} =$  \_\_\_\_\_
- (25) The multiplicative inverse of 0.3 is \_\_\_\_\_ (mixed number)
- (26)  $2016 \times 50 =$  \_\_\_\_\_
- (27) 9 gallons = \_\_\_\_\_ quarts
- (28)  $8723 \div 11$  has a remainder of \_\_\_\_\_
- (29) The product of the prime numbers between 10 and 15 is \_\_\_\_\_
- \*(30)  $\sqrt{291537} =$  \_\_\_\_\_
- (31) How much does a \$60 item cost that is on sale for 30% off? \$ \_\_\_\_\_
- (32) 40 has how many positive integral divisors? \_\_\_\_\_
- (33) If the mean of 2, 7, and x is 7, then x = \_\_\_\_\_
- (34)  $\frac{7}{13} + \frac{13}{7} =$  \_\_\_\_\_ (mixed number)
- (35) If  $2x + 5 = 17$ , then  $25(2x + 5) =$  \_\_\_\_\_
- (36)  $29^2 - 11^2 =$  \_\_\_\_\_
- (37) Find the area of a triangle with base 14 and height 28. \_\_\_\_\_
- (38)  $13 \times 13 + 39 \times 39 =$  \_\_\_\_\_
- (39) If  $f(x) = x^2 - 8x + 16$ , then  $f(14) =$  \_\_\_\_\_
- \*(40) 30% of 80% of 602 is \_\_\_\_\_
- (41) The vertex angle in an isosceles triangle with base angle  $79^\circ$  is \_\_\_\_\_  $^\circ$
- (42) 23 millimeters + 19 cm = \_\_\_\_\_ meters

- (43) Find the area of a trapezoid with height 20 and bases of 14 and 24. \_\_\_\_\_
- (44) How many vertices does a cube have? \_\_\_\_\_
- (45)  $(1+3+5+\dots+39) - (17+19+21+\dots+39) =$  \_\_\_\_\_
- (46) The measure of an exterior angle of a regular heptagon is \_\_\_\_\_<sup>o</sup>
- (47) How many subsets does {a,r,g,y,l,e} have that contain exactly 3 elements? \_\_\_\_\_
- (48)  $48^2 + 76^2 =$  \_\_\_\_\_
- (49)  $231_9 =$  \_\_\_\_\_<sub>10</sub>
- \*(50) Find the length of the diagonal of a square with side length 450. \_\_\_\_\_
- (51)  $32 \times \frac{32}{29} =$  \_\_\_\_\_ (mixed number)
- (52) If  $3! + 4! = k(3!)$ , then  $k =$  \_\_\_\_\_
- (53) The area of an equilateral triangle with side 12 is  $k\sqrt{3}$ ,  $k =$  \_\_\_\_\_
- (54)  $5\frac{1}{3} \times 7\frac{1}{3} =$  \_\_\_\_\_ (mixed number)
- (55) The x-intercept of  $3x - 2y = 24$  is \_\_\_\_\_
- (56)  $453_8 =$  \_\_\_\_\_<sub>2</sub>
- (57) If the midpoint of (-1, 5) and (3, 11) is (a, b), then  $a + b =$  \_\_\_\_\_
- (58)  $(3^2 + 6^2 + 7^2) \div 9$  has a remainder of \_\_\_\_\_
- (59)  $\sqrt{48 \times 42 + 9} =$  \_\_\_\_\_
- \*(60)  $3\frac{1}{5} \times 398 =$  \_\_\_\_\_
- (61)  $0.927927927\dots =$  \_\_\_\_\_ (fraction)
- (62)  $(21_6)^2 =$  \_\_\_\_\_<sub>6</sub>
- (63) How many digits are in the product  $2^4 \times 5^4 \times 3^4$ ? \_\_\_\_\_
- (64) What is the 8<sup>th</sup> pentagonal number? \_\_\_\_\_
- (65) The slope of a line perpendicular to  $2.5x + 2y = 11$  is \_\_\_\_\_
- (66) If  $\frac{a}{b} + \frac{b}{a} = 2\frac{25}{104}$ , where a and b are relatively prime, then  $a + b =$  \_\_\_\_\_
- (67) The probability of getting a sum of 9 when rolling a pair of dice is \_\_\_\_\_
- (68) If  $x^2 - 12x - 45 = (x + p)(x + q)$ , find the greater of p and q. \_\_\_\_\_
- (69)  $\frac{1^3 + 2^3 + 3^3 + \dots + 7^3}{1 + 2 + 3 + \dots + 7} =$  \_\_\_\_\_
- \*(70)  $0.125 \times 497 \times 802 =$  \_\_\_\_\_
- (71)  $\log_2 0.5 + \log_2 16 =$  \_\_\_\_\_
- (72) If  $f(x) = 4x^3 - 10x^2 + x - 2$  then  $f(3) =$  \_\_\_\_\_
- (73) When the height of a triangle with base 10 is increased from 18 to 29, the corresponding increase in area is \_\_\_\_\_
- (74) The distance between the roots of  $|x - 4| = 2$  is \_\_\_\_\_
- (75)  $i^{64} =$  \_\_\_\_\_
- (76)  $13 \times 1\frac{2}{11} =$  \_\_\_\_\_ (mixed number)
- (77)  $f(x) = x^2 - 6x + 11$  has how many real roots? \_\_\_\_\_
- (78) If  $16^x = 9$ , then  $4^{x+1} =$  \_\_\_\_\_
- (79) The sum of the 8<sup>th</sup> pentagonal number and the 8<sup>th</sup> triangular number is \_\_\_\_\_
- \*(80) 2016 yards = \_\_\_\_\_ inches

## 2015-2016 TMSCA Middle School Number Sense Key #10

- |                       |                       |   |                          |
|-----------------------|-----------------------|---|--------------------------|
| (1) 693               | (23) 60               | (43) 380                                | (63) 6                   |
| (2) 12                | (24) 87               | (44) 8                                  | (64) 92                  |
| (3) 228               |                       | (45) 64                                 |                          |
| (4) 121               | (25) $3\frac{1}{3}$   |   | (65) .8 or $\frac{4}{5}$ |
| (5) 1023              | (26) 100800           | (46) $\frac{360}{7}$ or $51\frac{3}{7}$ | (66) 21                  |
| (6) $\frac{9}{10}$    | (27) 36               | (47) 20                                 |                          |
| (7) 3                 | (28) 0                | (48) 8080                               | (67) $\frac{1}{9}$       |
| (8) .45               | (29) 143              | (49) 190                                |                          |
| (9) 13                | *(30) 513 – 566       | *(50) 605 – 668                         | (68) 3                   |
| *(10) 2219 – 2451     |                       |   | (69) 28                  |
| (11) 510              | (31) 42.00            | (51) $35\frac{9}{29}$                   | *(70) 47333 – 52315      |
| (12) 1400             | (32) 8                | (52) 5                                  |                          |
| (13) 2516             | (33) 12               |   | (71) 3                   |
| (14) 9118             | (34) $2\frac{36}{91}$ | (53) 36                                 | (72) 19                  |
| (15) 484              | (35) 425              | (54) $39\frac{1}{9}$                    |                          |
| (16) $1\frac{3}{10}$  | (36) 720              | (55) 8                                  | (73) 55                  |
|                       |                       | (56) 100101011                          | (74) 4                   |
| (17) $\frac{11}{18}$  | (37) 196              |   | (75) 1                   |
| (18) 1700             | (38) 1690             | (57) 9                                  | (76) $15\frac{4}{11}$    |
| (19) 6                | (39) 100              | (58) 4                                  | (77) 0                   |
| *(20) 199817 – 220849 | *(40) 138 – 151       | (59) 45                                 | (78) 12                  |
|                       |                       | *(60) 1210 – 1337                       |                          |
| (21) 92               | (41) 22               |   |                          |
| (22) 43734            | (42) .213             | (61) $\frac{103}{111}$                  | (79) 128                 |
|                       |                       | (62) 441                                | *(80) 68948 – 76204      |