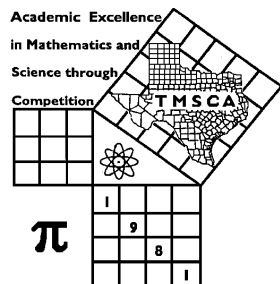


1st Score: _____	2nd Score: _____	3rd Score: _____	<b>Final Score</b>
Grader: _____	Grader: _____	Grader: _____	
<b>PLACE LABEL BELOW</b>			
Name: _____		School: _____	
SS/ID Number: _____		City: _____	
Grade: 5	6	7	8
Classification: 1A		2A	3A
		4A	5A
		6A	



**TMSCA MIDDLE SCHOOL`  
NUMBER SENSE  
TEST #9 ©  
JANUARY 30, 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 #9

- (1)  $2016 \times 6 =$  \_\_\_\_\_
- (2)  $6 \times 23 =$  \_\_\_\_\_
- (3)  $192 \div 4 =$  \_\_\_\_\_
- (4)  $64 \times 11 =$  \_\_\_\_\_
- (5)  $\frac{9}{10} - \frac{3}{7} =$  \_\_\_\_\_ (fraction)
- (6)  $48\% =$  \_\_\_\_\_ (fraction)
- (7)  $12 + 14 + 16 + 18 + 20 =$  \_\_\_\_\_
- (8)  $(13 + 72) \div 5 + 4^2 =$  \_\_\_\_\_
- (9)  $\frac{5}{6} \times 66 =$  \_\_\_\_\_
- \*(10)  $2497 + 19873 - 4173 =$  \_\_\_\_\_
- (11)  $247206 \div 6 =$  \_\_\_\_\_
- (12)  $12 \times 9 \frac{1}{6} =$  \_\_\_\_\_
- (13)  $75 \times 85 =$  \_\_\_\_\_
- (14) The mean of 10, 8, 3, 9, and 15 is \_\_\_\_\_
- (15)  $19^2 =$  \_\_\_\_\_
- (16)  $\frac{1}{2} + \frac{5}{12} =$  \_\_\_\_\_ (fraction)
- (17)  $27 \times 87 =$  \_\_\_\_\_
- (18)  $18 \times 32 + 18 \times 18 =$  \_\_\_\_\_
- (19)  $(LX)^2 =$  \_\_\_\_\_ (Arabic Number)
- \*(20)  $207 \times 323 =$  \_\_\_\_\_
- (21)  $8324 \div 8$  has a remainder of \_\_\_\_\_
- (22)  $98 \times 97 =$  \_\_\_\_\_
- (23) 110 feet = \_\_\_\_\_ inches
- (24) The LCM of 15 and 25 is \_\_\_\_\_
- (25) What is the side length of a square with area  $169 \text{ ft}^2$ ? \_\_\_\_\_ feet
- (26)  $108 \times 106 =$  \_\_\_\_\_
- (27) How many composite numbers are between 16 and 25? \_\_\_\_\_
- (28) The multiplicative inverse of  $\frac{2}{7}$  is \_\_\_\_\_ (decimal)
- (29)  $111 \times 249 =$  \_\_\_\_\_
- \*(30)  $(278 + 171) \times 499 =$  \_\_\_\_\_
- (31) If  $7x = 84$ , then  $x^2 =$  \_\_\_\_\_
- (32) The sum of the positive integral divisors of 18 is \_\_\_\_\_
- (33) 2 yards + 2 feet = \_\_\_\_\_ feet
- (34)  $11\frac{4}{7} + 11\frac{4}{7} =$  \_\_\_\_\_ (mixed number)
- (35) Find the total cost of a \$21 item with a sales tax rate of 8%? \$ \_\_\_\_\_
- (36) The perimeter of a regular pentagon with a side length of 19 is \_\_\_\_\_
- (37)  $7^2 + 21^2 =$  \_\_\_\_\_
- (38) The sum of the first ten positive even integers is how much greater than the sum of the first ten positive odd integers? \_\_\_\_\_
- (39) If 9 donuts cost \$5.00, then 3 dozen donuts cost \$ \_\_\_\_\_
- \*(40)  $\sqrt{184} \times \sqrt{370} =$  \_\_\_\_\_
- (41) 18% of 46 is 9% of \_\_\_\_\_

- (42)  $\frac{3}{7} + \frac{7}{3} =$  \_\_\_\_\_ (mixed number)
- (43) Find the diagonal of a rectangle with length 15 and width 8. \_\_\_\_\_
- (44)  $11^3 =$  \_\_\_\_\_
- (45) If  $2x - 3 = 7$ , then  $2x(2x - 3) =$  \_\_\_\_\_
- (46)  $145_6 =$  \_\_\_\_\_<sub>10</sub>
- (47) A set with 8 elements has how many 3-element subsets? \_\_\_\_\_
- (48)  $72^2 - 8^2 =$  \_\_\_\_\_
- (49)  $213_6 + 325_6 =$  \_\_\_\_\_<sub>6</sub>
- \*(50)  $\sqrt[3]{321478} =$  \_\_\_\_\_
- (51) The area of a triangle with height 12 and base 26 is \_\_\_\_\_
- (52)  $19 \times \frac{20}{23} =$  \_\_\_\_\_ (mixed number)
- (53) If  $f(x) = -3x^2 + 2x + 4$ , then  $f(4) =$  \_\_\_\_\_
- (54) How many distinct diagonals can be drawn inside a 20-sided regular polygon? \_\_\_\_\_
- (55) If  $x(x - 3) > 45$ , then the smallest possible integer value of  $x$  is \_\_\_\_\_
- (56) The 14<sup>th</sup> term of 9, 14, 19, 24, ... is \_\_\_\_\_
- (57)  $\sqrt[3]{\frac{125}{8}} =$  \_\_\_\_\_ (mixed number)
- (58)  $(3 \times 2^4 + 1) \div 5$  has a remainder of \_\_\_\_\_
- (59)  $20\sqrt{12} \times 5\sqrt{3} =$  \_\_\_\_\_
- \*(60)  $\pi^7 =$  \_\_\_\_\_
- (61) Find the sum of the infinite geometric series  $5 + 2.5 + 1.25 + \dots$  \_\_\_\_\_
- (62)  $0.545454\dots =$  \_\_\_\_\_ (fraction)
- (63) If set  $A = \{d,u,k,e\}$  and set  $B = \{d,e,v,i,l,s\}$ , then what is the sum of the number of elements in  $A \cap B$  and  $A \cup B$ ? \_\_\_\_\_
- (64) The measure of the exterior angle of a regular 20-sided polygon is \_\_\_\_\_ degrees
- (65) Find the slope of the line  $4x - 7y = 13$ . \_\_\_\_\_
- (66) If  $\frac{2+4+6+8+\dots+44}{1+3+5+\dots+21} = \frac{x}{11}$ , then  $x =$  \_\_\_\_\_
- (67)  $11^2 + 22^2 + 55^2 = 11^2 \times$  \_\_\_\_\_
- (68) If  $x = 15$  and  $y = 2$ , then  $(x - y)(x + y) =$  \_\_\_\_\_
- (69) Find the number of integers between  $\sqrt{13}$  and  $\sqrt{91}$  on the number line. \_\_\_\_\_
- \*(70) The volume of a cube with edge 27 is \_\_\_\_\_
- (71) If  $P$  and  $Q$  are roots of  $3x^2 - 7x + 5 = 0$ , then  $\frac{PQ}{P+Q} =$  \_\_\_\_\_
- (72) The number of positive integers less than 20 that are relatively prime to 20 is \_\_\_\_\_
- (73) The largest 2-digit number in the sequence 10, 21, 32, 43, ... is \_\_\_\_\_
- (74)  $\frac{1}{30} + \frac{1}{42} + \frac{1}{56} =$  \_\_\_\_\_ (fraction)
- (75)  $996 \times 991 =$  \_\_\_\_\_
- (76) 2016 has how many distinct prime divisors? \_\_\_\_\_
- (77) The discriminant of  $2x^2 - 3x - 7 = 0$  is \_\_\_\_\_
- (78) If  $5x - y = 19$  and  $x + y = 11$ , then  $x =$  \_\_\_\_\_
- (79)  $16^4 =$  \_\_\_\_\_
- \*(80) 175 gallon = \_\_\_\_\_ cubic inches

## 2015-2016 TMSCA Middle School Number Sense Key #9

- |                      |                       |                        |                     |
|----------------------|-----------------------|------------------------|---------------------|
| (1) 12096            | (23) 1320             | (42) $2\frac{16}{21}$  | (62) $\frac{6}{11}$ |
| (2) 138              | (24) 75               |                        |                     |
| (3) 48               |                       | (43) 17                |                     |
| (4) 704              | (25) 13               | (44) 1331              | (63) 10             |
| (5) $\frac{33}{70}$  | (26) 11448            | (45) 70                | (64) 18             |
| (6) $\frac{12}{25}$  | (27) 5                | (46) 65                | (65) $\frac{4}{7}$  |
| (7) 80               | (28) 3.5              | (47) 56                | (66) 46             |
| (8) 33               | (29) 27639            | (48) 5120              | (67) 30             |
| (9) 55               | *(30) 212849 – 235253 | (49) 542               | (68) 221            |
| *(10) 17288 – 19106  | (31) 144              | *(50) 66 – 71          |                     |
| (11) 41201           | (32) 39               |                        | (69) 6              |
| (12) 110             | (33) 8                | (51) 156               | *(70) 18699 – 20667 |
| (13) 6375            | (34) $23\frac{1}{7}$  | (52) $16\frac{12}{23}$ | (71) $\frac{5}{7}$  |
| (14) 9               |                       | (53) –36               |                     |
| (15) 361             | (35) 22.68            | (54) 170               | (72) 8              |
| (16) $\frac{11}{12}$ | (36) 95               |                        | (73) 98             |
| (17) 2349            | (37) 490              | (55) 9                 | (74) $\frac{3}{40}$ |
| (18) 900             |                       | (56) 74                |                     |
| (19) 3600            | (38) 10               | (57) $2\frac{1}{2}$    | (75) 987036         |
| *(20) 63518 – 70204  | (39) 20.00            | (58) 4                 | (76) 36             |
| (21) 4               | *(40) 248 – 273       | (59) 600               | (77) 65             |
| (22) 9506            | (41) 92               | *(60) 2870 – 3171      | (78) 5              |
|                      |                       |                        | (79) 8              |
|                      |                       | (61) 10                | *(80) 38404 – 42446 |