

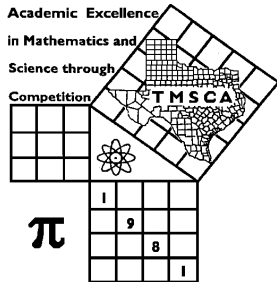
1st Score: _____	2nd Score: _____	3rd Score: _____	<b>Final Score</b>
Grader: _____	Grader: _____	Grader: _____	

**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 # 8 ©  
JANUARY 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.



## 2016-2017 TMSCA Middle School Number Sense Test #8

- (1)  $2017 - 1702 =$  \_\_\_\_\_
- (2)  $2017 \times 5 =$  \_\_\_\_\_
- (3)  $37 \times 6 =$  \_\_\_\_\_
- (4)  $180 \div 15 =$  \_\_\_\_\_
- (5)  $11 \times 26 =$  \_\_\_\_\_
- (6)  $\frac{1}{4} + \frac{2}{3} =$  \_\_\_\_\_ (fraction)
- (7)  $\frac{7}{8} =$  \_\_\_\_\_ % (mixed number)
- (8)  $4 + 5 \div 2 - 3 \div 4 =$  \_\_\_\_\_ (decimal)
- (9)  $25 \times 13 =$  \_\_\_\_\_
- \*(10)  $1317 + 249 - 781 =$  \_\_\_\_\_
- (11)  $\frac{14}{11} \times 154 =$  \_\_\_\_\_
- (12)  $62\frac{1}{3}\% =$  \_\_\_\_\_ (fraction)
- (13)  $19 \times 21 =$  \_\_\_\_\_
- (14)  $10^2 - 8^2 - 5^2 =$  \_\_\_\_\_
- (15)  $88 \text{ inches} = 4 \text{ inches} +$  \_\_\_\_\_ feet
- (16)  $12 \times 73 =$  \_\_\_\_\_
- (17)  $18 \times 44 - 18 \times 26 =$  \_\_\_\_\_
- (18)  $1 + 2 + 3 + 4 + \dots + 11 =$  \_\_\_\_\_
- (19)  $1 + 3 + 5 + \dots + 31 =$  \_\_\_\_\_
- \*(20)  $37 \times 428 =$  \_\_\_\_\_
- (21)  $96 \times 91 =$  \_\_\_\_\_
- (22)  $9^3 =$  \_\_\_\_\_
- (23)  $\frac{9}{11} + \frac{11}{9} =$  \_\_\_\_\_ (mixed number)
- (24) The sum of the smallest 11 positive even integers is \_\_\_\_\_
- (25)  $50 \times 94 =$  \_\_\_\_\_
- (26)  $112 \times 18 =$  \_\_\_\_\_
- (27) How many positive even integers are between 44 and 88? \_\_\_\_\_
- (28) The GCD of 18, 30, and 40 is \_\_\_\_\_
- (29) 3 gallon = \_\_\_\_\_ pints
- \*(30)  $32 \times 49 + 38 \times 51 =$  \_\_\_\_\_
- (31) If the smaller angles of an isosceles trapezoid are both  $53^\circ$ , then the larger angles have a sum of \_\_\_\_\_  $^\circ$
- (32) If 8 pencils cost \$2.25, then 2 dozen pencils cost \$ \_\_\_\_\_
- (33)  $11\frac{4}{5} \times 11\frac{1}{5} =$  \_\_\_\_\_ (mixed number)
- (34) 45 has how many distinct prime divisors? \_\_\_\_\_
- (35) The sum of the distinct prime divisors of 45 is \_\_\_\_\_
- (36) 30 has how many positive integral divisors? \_\_\_\_\_
- (37)  $54^2 - 26^2 =$  \_\_\_\_\_
- (38)  $19^2 + 57^2 =$  \_\_\_\_\_
- (39) If  $x = 2$  and  $y = 13$ , then  $5x + 13y =$  \_\_\_\_\_
- \*(40)  $31.4 \times 27.18 =$  \_\_\_\_\_
- (41) If 15% of 72 = A% of 24, then A = \_\_\_\_\_
- (42)  $(19^2 + 13^2) \div 3$  has a remainder of \_\_\_\_\_
- (43)  $\sqrt{10816} =$  \_\_\_\_\_

- (44) The perimeter of a pentagon with sides of 43 is \_\_\_\_\_
- (44) The area of a rhombus with diagonals 50 and 36 is \_\_\_\_\_
- (46)  $0.89999\dots =$  \_\_\_\_\_ (fraction)
- (47) If  $216^2 = 46656$ , then  $206 \times 226 =$  \_\_\_\_\_
- (48) A polygon with 14 distinct diagonals has \_\_\_\_\_ sides
- (49) The sum of the exterior angles of a 16-sided polygon is \_\_\_\_\_ $^\circ$
- \*(50)  $16^3 + 18^3 + 20^3 =$  \_\_\_\_\_
- (51)  $25 \times \frac{25}{27} =$  \_\_\_\_\_ (mixed number)
- (52) The larger solution of  $|3x - 2| = 5$  is \_\_\_\_\_
- (53)  $43\%$  of 50 +  $19\%$  of 50 = \_\_\_\_\_
- (54)  $1 + 4 + 7 + 10 + \dots + 34 =$  \_\_\_\_\_
- (55)  $134_8 =$  \_\_\_\_\_<sub>10</sub>
- (56) The sum of the two consecutive positive integers which  $\sqrt{500}$  is between equals \_\_\_\_\_
- (57)  $1_6 + 2_6 + 3_6 + 4_6 + 5_6 + 10_6 =$  \_\_\_\_\_<sub>6</sub>
- (58)  $2^{14} \div 8$  has a remainder of \_\_\_\_\_
- (59)  $\sqrt[3]{\frac{125}{8}} =$  \_\_\_\_\_ (mixed number)
- \*(60) The area of an equilateral triangle with side length 40 equals \_\_\_\_\_
- (61)  $\frac{5}{2} \div \frac{5}{4} \times \frac{5}{8} =$  \_\_\_\_\_
- (62)  $2^5 \times 3^4 \times 5^4 =$  \_\_\_\_\_
- (63)  $11663 = 109 \times$  \_\_\_\_\_
- (64)  $794 \times 101 =$  \_\_\_\_\_
- (65) The first 4 decimal places of  $\frac{17}{99}$  are 0. \_\_\_\_\_
- (66) How many ways can a committee of 2 people be chosen from 11 people? \_\_\_\_\_
- (67) Find the slope of the line  $3x - 7y = 13$ . \_\_\_\_\_
- (68) The length of the segment whose endpoints are the x-intercept and y-intercept of  $4x + 3y = 24$  is \_\_\_\_\_
- (69)  $32_5 + 34_5 =$  \_\_\_\_\_<sub>5</sub>
- \*(70)  $\sqrt{145} \times \sqrt{208} =$  \_\_\_\_\_
- (71) P and Q are positive roots of  $9x^2 - 38x + 25 = 0$ .  
The arithmetic mean of P and Q is \_\_\_\_\_
- (72) If  $f(x) = 3x + 11$ , then  $f(11) - f(6) =$  \_\_\_\_\_
- (73) What is the probability of obtaining a sum of two 6-sided dice to be between 5 and 7 inclusive? \_\_\_\_\_
- (74) Find the number of elements in  $A \cup B$  if  $A = \{t, m, s, c, a\}$  and  $B = \{s, t, e, m\}$ . \_\_\_\_\_
- (75)  $\frac{1^3 + 2^3 + 3^3 + \dots + 15^3}{1 + 2 + 3 + \dots + 15} =$  \_\_\_\_\_
- (76)  $\frac{11}{20} + \frac{11}{30} + \frac{11}{42} =$  \_\_\_\_\_
- (77) If the roots of  $f(x) = x^2 + 9x + 12$  are each increased by 2 to create  $g(x) = x^2 + bx + c$ , then  $b =$  \_\_\_\_\_
- (78) If  $9^x = 576$ , then  $3^x =$  \_\_\_\_\_
- (79) The sum of the coefficients of  $(5x - y)^4$  is \_\_\_\_\_
- \*(80) 53 miles = \_\_\_\_\_ feet

## 2016-2017 TMSCA Middle School Number Sense Key #8

- (1) 315  
(2) 10085  
(3) 222  
(4) 12  
(5) 286  
(6)  $\frac{11}{12}$   
(7)  $87\frac{1}{2}$   
(8) 5.75  
(9) 325  
\*(10) 746 – 824  
(11) 196  
(12)  $\frac{187}{300}$   
(13) 399  
(14) 11  
(15) 7  
(16) 876  
(17) 324  
(18) 66  
(19) 256  
\*(20) 15045 – 16627  
(21) 8736  
(22) 729
- (23)  $2\frac{4}{99}$   
(24) 132  
(25) 4700  
(26) 2016  
(27) 21  
(28) 2  
(29) 24  
\*(30) 3331 – 3681  
(31) 254  
(32) 6.75  
(33)  $132\frac{4}{25}$   
(34) 2  
(35) 8  
(36) 8  
(37) 2240  
(38) 3610  
(39) 179  
\*(40) 811 – 896  
(41) 45  
(42) 2  
(43) 104
- (44) 215  
(45) 900  
(46)  $\frac{9}{10}$   
(47) 46656  
(48) 7  
(49) 360  
\*(50) 17032 – 18824  
(51)  $23\frac{4}{27}$   
(52)  $2\frac{1}{3}$  or  $\frac{7}{3}$   
(53) 31  
(54) 210  
(55) 92  
(56) 45  
(57) 33  
(58) 0  
(59)  $2\frac{1}{2}$   
\*(60) 659 – 727  
(61) 1.25,  $1\frac{1}{4}$ , or  $\frac{5}{4}$   
(62) 1620000
- (63) 107  
(64) 80194  
(65) 1717  
(66) 55  
(67)  $\frac{3}{7}$   
(68) 10  
(69) 121  
\*(70) 165 – 182  
(71)  $\frac{19}{9}$  or  $2\frac{1}{9}$   
(72) 15  
(73)  $\frac{5}{12}$   
(74) 6  
(75) 120  
(76)  $\frac{33}{28}$  or  $1\frac{5}{28}$   
(77) 5  
(78) 24  
(79) 256  
\*(80) 265848 – 293832