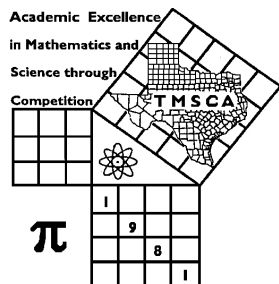


1st Score: _____	2nd Score: _____	3rd Score: _____	<b>Final Score</b>
Grader: _____	Grader: _____	Grader: _____	
<b>PLACE LABEL BELOW</b>			
Name: _____ School: _____			
SS/ID Number: _____ City: _____			
Grade:    5    6    7    8                      Classification:    1A    2A    3A    4A    5A  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



**TMSCA MIDDLE SCHOOL  
NUMBER SENSE  
TEST # 6 ©  
DECEMBER 2, 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.



## 2017-2018 TMSCA Middle School Number Sense Test 6

- (1)  $2018 - 1082 =$  \_\_\_\_\_
- (2)  $34 \times 9 =$  \_\_\_\_\_
- (3)  $11 \times 97 =$  \_\_\_\_\_
- (4)  $5.25$  feet = \_\_\_\_\_ inches
- (5)  $0.66 =$  \_\_\_\_\_ (fraction)
- (6)  $234276 \div 6$  has a remainder of \_\_\_\_\_
- (7)  $\frac{5}{8} - \frac{2}{5} =$  \_\_\_\_\_ (fraction)
- (8)  $18 \times 9 \div 2 =$  \_\_\_\_\_
- (9)  $2\frac{3}{7} \times 35 =$  \_\_\_\_\_
- \*(10)  $2018 + 8102 + 1028 =$  \_\_\_\_\_
- (11)  $128 \times 25 =$  \_\_\_\_\_
- (12)  $89 \times 91 =$  \_\_\_\_\_
- (13)  $12\frac{1}{2}\% =$  \_\_\_\_\_ (fraction)
- (14)  $75 \times 0.6666\dots =$  \_\_\_\_\_
- (15)  $12^2 =$  \_\_\_\_\_
- (16)  $92 \times 94 =$  \_\_\_\_\_
- (17)  $68 \times 48 =$  \_\_\_\_\_
- (18)  $48 \times 37\frac{1}{2} =$  \_\_\_\_\_
- (19)  $12^3 =$  \_\_\_\_\_
- \*(20)  $425^2 =$  \_\_\_\_\_
- (21)  $1 + 3 + 5 + \dots + 43 =$  \_\_\_\_\_
- (22)  $77 \times 73 =$  \_\_\_\_\_
- (23)  $11227 = 109 \times$  \_\_\_\_\_
- (24) The multiplicative inverse of  $\frac{7}{19}$  is \_\_\_\_\_ (mixed number)
- (25)  $93 \times 101 =$  \_\_\_\_\_
- (26) The largest prime divisor of 93 is \_\_\_\_\_
- (27) The LCM of 24, 36, and 48 is \_\_\_\_\_
- (28)  $(30 + 5)(30 - 5) =$  \_\_\_\_\_
- (29)  $0.35 \times 44 =$  \_\_\_\_\_ (decimal)
- \*(30)  $32^2 + 96^2 + 32^2 + 64^2 =$  \_\_\_\_\_
- (31) The two equal angles of an isosceles triangle each measure  $16^\circ$ . The other angle is \_\_\_\_\_  $^\circ$
- (32)  $878 \times 111 =$  \_\_\_\_\_
- (33)  $9\frac{3}{11} \times 9\frac{8}{11} =$  \_\_\_\_\_ (mixed number)
- (34)  $11 \times 11 + 33 \times 33 =$  \_\_\_\_\_
- (35)  $(8^2 + 6^2) \div 7$  has a remainder of \_\_\_\_\_
- (36) 60 has how many positive integral divisors? \_\_\_\_\_
- (37) The median of 14, 12, 7, 19, and 31 is \_\_\_\_\_
- (38) If  $f(x) = x^2 + 12x + 36$ , then  $f(39) =$  \_\_\_\_\_
- (39) The area of a square with diagonal  $5\sqrt{2}$  is \_\_\_\_\_
- \*(40)  $98 \times 44 + 46 \times 61 =$  \_\_\_\_\_
- (41) If  $x < 0$  and  $x^2 = 4$ , then  $x^6 =$  \_\_\_\_\_
- (42) The sum of the smallest 24 even positive integers is \_\_\_\_\_

- (43) If  $\frac{3x-4}{2} = 13$ , then  $x =$  \_\_\_\_\_
- (44) If  $68^2 = 4624$ , then  $65 \times 71 =$  \_\_\_\_\_
- (45) If  $f(x) = \sqrt{x^3 - (x-3)^2}$ , then  $f(5) =$  \_\_\_\_\_
- (46)  $64^2 =$  \_\_\_\_\_
- (47) A 7-element set has \_\_\_\_\_ subsets
- (48) If a regular polygon has an exterior angle of  $24^\circ$ , then it has \_\_\_\_\_ sides
- (49)  $24_6 \times 4_6 =$  \_\_\_\_\_
- \*(50)  $75 \times 50 \times 25 =$  \_\_\_\_\_
- (51)  $27 \times \frac{25}{23} =$  \_\_\_\_\_ (mixed number)
- (52)  $4 \times 5 \times 6 \times 7 + 1 =$  \_\_\_\_\_
- (53)  $6\frac{1}{4} \times 6\frac{1}{4} =$  \_\_\_\_\_ (mixed number)
- (54) A triangle with a smallest angle of  $39^\circ$  has angles in arithmetic progression. The largest angle has a measure of \_\_\_\_\_ $^\circ$ .
- (55)  $\frac{1}{3} + \frac{2}{3} + 1 + \dots + \frac{14}{3} =$  \_\_\_\_\_
- (56)  $(8^{10} + 10^{10}) \div 8$  has a remainder of \_\_\_\_\_
- (57) If the x-intercept and y-intercept of  $4x - 9y = 36$  are  $(p, 0)$  and  $(0, q)$ , then  $p + q =$  \_\_\_\_\_
- (58) The sum of the series  $2 + 6 + 10 + \dots + 26 =$  \_\_\_\_\_
- (59) What is the tens digit of  $103^3$ ? \_\_\_\_\_
- \*(60)  $11\frac{1}{5} \times 599 =$  \_\_\_\_\_
- (61) If  $y - 3 = 5(x - 7)$ , then find the y-intercept. \_\_\_\_\_
- (62) If  $7373 = 83^2 + x^2$ , and  $x > 0$ , then  $x =$  \_\_\_\_\_
- (63) If  $2^x \times 5^6 \times 11$  ends in 6 zeros, then  $x \geq$  \_\_\_\_\_
- (64)  $0.83333\dots =$  \_\_\_\_\_ (fraction)
- (65) If  $f(x) = 3x^2 - 5$ , then  $f(17) - f(13) =$  \_\_\_\_\_
- (66) The following lines are parallel:  
 $4x - 3y = 11$  and  $Ax + 9y = 14$ ,  $A =$  \_\_\_\_\_
- (67) The axis of symmetry of  $f(x) = (x - 2)(x - 5)$  is  $x =$  \_\_\_\_\_
- (68) The discriminant of  $(x - 1)^2 = 0$  is \_\_\_\_\_
- (69) What is the 8<sup>th</sup> triangular number? \_\_\_\_\_
- \*(70)  ${}_{24}C_4 =$  \_\_\_\_\_
- (71) The first 4 decimal places of  $\frac{23}{99}$  is 0. \_\_\_\_\_
- (72)  $1^3 + 2^3 + 3^3 + \dots + 10^3 =$  \_\_\_\_\_
- (73)  $804^2 =$  \_\_\_\_\_
- (74) The sum of the infinite geometric series  $15 + 3 + \frac{3}{5} + \dots =$  \_\_\_\_\_
- (75) The sum of the roots of  $f(x) = (3x - 2)(x - 4)$  is \_\_\_\_\_ (mixed number)
- (76) The probability of getting a sum of 6 when rolling two dice is \_\_\_\_\_
- (77) If  $2x - 5y = 13$  and  $x + y = 17$ , then  $y =$  \_\_\_\_\_
- (78) If  $\sqrt[4]{5x+1} = 2$ , then  $x =$  \_\_\_\_\_
- (79) The sum of the solutions of  $|x + 3| + 5 = 11$  is \_\_\_\_\_
- \*(80)  $\sqrt{45831} =$  \_\_\_\_\_

## 2017-2018 TMSCA Middle School Number Sense Key #6

- |                       |                         |                       |  |
|-----------------------|-------------------------|-----------------------|--|
| (1) 936               | (23) 103                | (43) 10               | (62) 22  |
| (2) 306               |                         | (44) 4615             | (63) 6   |
| (3) 1067              | (24) $2\frac{5}{7}$     | (45) 11               | (64) $\frac{5}{6}$                               |
| (4) 63                |                         | (46) 4096             | (65) 360   |
| (5) $\frac{33}{50}$   | (25) 9393               | (47) 128              |  |
| (6) 0                 | (26) 31                 |                       | (66) - 12  |
| (7) $\frac{9}{40}$    | (27) 144                | (48) 15               |  |
|                       | (28) 875                | (49) 144              | (67) $3\frac{1}{2}$ , $\frac{7}{2}$ , or 3.5     |
| (8) 81                | (29) 15.4               | *(50) 89063 - 98437   | (68) 0   |
| (9) 85                | *(30) 14592 - 16128     | (51) $29\frac{8}{23}$ | (69) 36  |
| *(10) 10591 - 11705   |                         | (52) 841              | *(70) 10095 - 11157                              |
| (11) 3200             | (31) 148                | (53) $39\frac{1}{16}$ | (71) 2323  |
| (12) 8099             | (32) 97458              |                       | (72) 3025  |
| (13) $\frac{1}{8}$    | (33) $90\frac{24}{121}$ |                       | (73) 646416                                      |
| (14) 50               | (34) 1210               | (54) 81               |  |
| (15) 144              | (35) 2                  | (55) 35               | (74) $18\frac{3}{4}$ , $\frac{75}{4}$ , or 18.75 |
| (16) 8648             | (36) 12                 | (56) 0                | (75) $4\frac{2}{3}$                              |
| (17) 3264             | (37) 14                 | (57) 5                | (76) $\frac{5}{36}$                              |
| (18) 1800             | (38) 2025               | (58) 98               | (77) 3   |
| (19) 1728             | (39) 25                 | (59) 2                | (78) 3   |
| *(20) 171594 - 189656 | *(40) 6763 - 7473       | *(60) 6374 - 7044     | (79) - 6   |
| (21) 484              | (41) 64                 |                       | *(80) 204 - 224                                  |
| (22) 5621             | (42) 600                | (61) - 32             |  |