





## 2018 – 2019 TMSCA Middle School Number Sense Test #13

- (1)  $2019 + 2018 =$  \_\_\_\_\_
- (2)  $372 - 124 =$  \_\_\_\_\_
- (3)  $63 \times 7 =$  \_\_\_\_\_
- (4)  $42 \times 50 =$  \_\_\_\_\_
- (5)  $56 \times 25 =$  \_\_\_\_\_
- (6)  $325 \div 25 =$  \_\_\_\_\_
- (7)  $2314 \div 4$  has a remainder of \_\_\_\_\_
- (8)  $2 \times 3 \times 4 \times 5 \div 6 =$  \_\_\_\_\_
- (9)  $\frac{4}{9} \times 72 =$  \_\_\_\_\_
- \*(10)  $47 + 473 + 4732 =$  \_\_\_\_\_
- (11)  $17 \times 41 + 63 \times 41 + 20 \times 41 =$  \_\_\_\_\_
- (12)  $81 \times 12 =$  \_\_\_\_\_
- (13)  $31^2 =$  \_\_\_\_\_
- (14)  $92 \times 97 =$  \_\_\_\_\_
- (15) The mean of 14, 17 and \_\_\_\_\_ is 20
- (16)  $115 \times 20 =$  \_\_\_\_\_
- (17)  $108 \times 102 =$  \_\_\_\_\_
- (18)  $24 \times 12\frac{1}{2} =$  \_\_\_\_\_
- (19)  $37 \times 93 =$  \_\_\_\_\_
- \*(20)  $248 \times 124 =$  \_\_\_\_\_
- (21)  $16 + 37 - 21 \div 3 - 6^2 =$  \_\_\_\_\_
- (22)  $28 \times 88 =$  \_\_\_\_\_
- (23)  $1 + 2 + 3 + 4 + \dots + 100 =$  \_\_\_\_\_
- (24)  $53 \times 5.7 =$  \_\_\_\_\_ (decimal)
- (25)  $54 \times 33\frac{1}{3} \times 18 =$  \_\_\_\_\_
- (26) The GCD of 18 and 66 is \_\_\_\_\_
- (27) The LCM of 18 and 66 is \_\_\_\_\_
- (28) The square root of  $\frac{121}{16}$  is \_\_\_\_\_ (mixed number)
- (29) 51 inches = \_\_\_\_\_ feet(decimal)
- \*(30) 2019 gallons = \_\_\_\_\_ cups
- (31)  $35^2 =$  \_\_\_\_\_
- (32)  $51393 \div 111 =$  \_\_\_\_\_
- (33)  $\frac{4}{11} + \frac{11}{4} =$  \_\_\_\_\_ (mixed number)
- (34) The area of a rectangle with a length of 283 and width 101 is \_\_\_\_\_
- (35)  $19^2 + 57^2 =$  \_\_\_\_\_
- (36)  $19\frac{2}{7} \times 19\frac{5}{7} =$  \_\_\_\_\_ (mixed number)
- (37) How many prime numbers are between 40 and 50? \_\_\_\_\_
- (38) How many fractions between 0.4 and 0.9 have a denominator of 20 with an integer numerator? \_\_\_\_\_
- (39) 100 has \_\_\_\_\_ positive integral divisors
- \*(40)  $33\frac{1}{3}\%$  of  $\frac{1}{2}$  of 27599 is \_\_\_\_\_
- (41) If  $f(x) = 9x^2 - 12x + 4$  and  $f(24) = k^2$ ,  $k > 0$ , then  $k =$  \_\_\_\_\_
- (42) If  $\frac{3x - 4}{7} = 8$ , then  $x =$  \_\_\_\_\_
- (43)  $213_7 =$  \_\_\_\_\_<sub>10</sub>
- (44)  $15^3 =$  \_\_\_\_\_

- (45)  $\sqrt{9801} =$  \_\_\_\_\_
- (46)  $93^2 - 17^2 =$  \_\_\_\_\_
- (47)  $39^2 + 31^2 =$  \_\_\_\_\_
- (48) The 15<sup>th</sup> pentagonal number is equal to  $15k$ ,  $k =$  \_\_\_\_\_
- (49) The measure of the interior angle of a 36-sided polygon is \_\_\_\_\_ °
- \*(50) The area of a square with diagonal  $450\sqrt{2}$  is \_\_\_\_\_
- (51)  $67^2 + 64^2 =$  \_\_\_\_\_
- (52) If  $f(3x + 2) = 4x + 5$ , then  $f(23) =$  \_\_\_\_\_
- (53) The sum of the solutions of  $|3x - 4| = 19$  is \_\_\_\_\_
- (54)  $11^{17} \div 17$  has a remainder of \_\_\_\_\_
- (55) How many terms are in the sequence 19, 27, 35, 43, ..., 139? \_\_\_\_\_
- (56) If  $8^x = 125$ , then  $4^x =$  \_\_\_\_\_
- (57) If  $x(x + 5) < 130$ , then the largest integer solution is  $x =$  \_\_\_\_\_
- (58)  $234_6 - 52_6 =$  \_\_\_\_\_<sub>6</sub>
- (59) The sum of the 8<sup>th</sup> and 9<sup>th</sup> triangular numbers is \_\_\_\_\_
- \*(60) If three consecutive integers have a product of 274560, then the middle integer is \_\_\_\_\_
- (61) If  $f(x)$  is a linear function of slope  $-\frac{5}{3}$  and  $f(4) = 27$ , then  $f(10) =$  \_\_\_\_\_
- (62)  $(23_9)^2 =$  \_\_\_\_\_<sub>9</sub>
- (63)  $45 \times 85 =$  \_\_\_\_\_
- (64)  $0.878787\dots = \frac{a}{b}$ , where  $a$  and  $b$  have no common factors, then  $a + b =$  \_\_\_\_\_
- (65) If  $3x - 7y = 12$  is perpendicular to  $35x + by = 100$ , then  $b =$  \_\_\_\_\_
- (66) If  $7 \times 8 \times 9 \times 10 + 1 = k^2$ ,  $k > 0$ , then  $k =$  \_\_\_\_\_
- (67) If the inner diagonal of a cube is  $7\sqrt{3}$ , the volume is \_\_\_\_\_
- (68) The discriminant of  $4x^2 - 7x - 1 = 0$  is \_\_\_\_\_
- (69)  $\sqrt{39^2 - 36^2} =$  \_\_\_\_\_
- \*(70) The area of an equilateral triangle with side 60 is \_\_\_\_\_
- (71) If  $y = 3(x - 2)^2 + k$  has a y-intercept of 14, then  $k =$  \_\_\_\_\_
- (72) How many positive integers less than 99 are relatively prime to 99? \_\_\_\_\_
- (73) If the two roots of  $f(x) = x^2 + bx + c$  are  $-3$  and  $17$ , then the axis of symmetry is  $x =$  \_\_\_\_\_
- (74) The sum of the infinite geometric series  $10 + 4 + 1.6 + \dots =$  \_\_\_\_\_
- (75)  $\frac{3! + 4! + 5!}{3!} =$  \_\_\_\_\_
- (76) The first 4 decimal places of  $\frac{231}{900}$  is 0. \_\_\_\_\_
- (77) The number of triangles which can be drawn from any vertex of a dodecagon is \_\_\_\_\_
- (78) How many nonnegative integers ordered pairs are solutions of  $3x + 5y = 90$ ? \_\_\_\_\_
- (79) If  $4^{2x+3} = 1600$ , then  $4^x =$  \_\_\_\_\_
- \*(80)  $102 \times 104 \times 107 =$  \_\_\_\_\_

## 2018-2019 TMSCA Middle School Number Sense Key #13

- |                     |                         |                                      |  |
|---------------------|-------------------------|--------------------------------------|--|
| (1) 4037            | (25) 32400              | (45) 99                              |  |
| (2) 248             | (26) 6                  | (46) 8360                            | (64) 62                                |
| (3) 441             | (27) 198                | (47) 2482                            | (65) 15                                |
| (4) 2100            |                         |                                      | (66) 71                                |
| (5) 1400            | (28) $2\frac{3}{4}$     | (48) 22                              |  |
| (6) 13              | (29) 4.25               | (49) 170                             | (67) 343                               |
| (7) 2               | *(30) 30689 – 33919     |                                      | (68) 65                                |
| (8) 20              | (31) 1225               | *(50) 192375 – 212625                | (69) 15                                |
| (9) 32              | (32) 463                | (51) 8585                            |  |
| *(10) 4990 – 5514   | (33) $3\frac{5}{44}$    | (52) 33                              | *(70) 1481 – 1636                      |
| (11) 4100           |                         | (53) $\frac{8}{3}$ or $2\frac{2}{3}$ | (71) 2                                 |
| (12) 972            | (34) 28583              | (54) 11                              |  |
| (13) 961            | (35) 3610               |                                      | (72) 60                                |
| (14) 8924           | (36) $380\frac{10}{49}$ | (55) 16                              |  |
| (15) 29             |                         | (56) 25                              | (73) 7                                 |
| (16) 2300           | (37) 3                  |                                      | (74) $\frac{50}{3}$ or $16\frac{2}{3}$ |
| (17) 11016          |                         | (57) 9                               |  |
| (18) 300            | (38) 9                  | (58) 142                             | (75) 25                                |
| (19) 3441           | (39) 9                  | (59) 81                              | (76) 2566                              |
| *(20) 29215 – 32289 | *(40) 4370 – 4829       |                                      | (77) 220                               |
| (21) 10             | (41) 70                 | *(60) 62 – 68                        |  |
| (22) 2464           | (42) 20                 |                                      | (78) 7                                 |
| (23) 5050           | (43) 108                | (61) 17                              | (79) 5                                 |
| (24) 302.1          | (44) 3375               | (62) 540                             | *(80) 1078304 – 1191808                |
|                     |                         | (63) 3825                            |  |