





## 2017-2018 TMSCA Middle School Number Sense Test #2

- (1)  $2018 \times 5 =$  \_\_\_\_\_
- (2)  $24 \times 75 =$  \_\_\_\_\_
- (3)  $34 \times 7 =$  \_\_\_\_\_
- (4)  $935 \div 11 =$  \_\_\_\_\_
- (5)  $5 + 7 + 9 + 11 + 13 =$  \_\_\_\_\_
- (6)  $\frac{3}{8} + \frac{5}{8} + \frac{7}{8} =$  \_\_\_\_\_ (improper fraction)
- (7) The largest 2-digit multiple of 15 is \_\_\_\_\_
- (8)  $16^2 =$  \_\_\_\_\_
- (9)  $11 \times 13 + 11 \times 5 =$  \_\_\_\_\_
- \*(10)  $2018 \times 55 - 3113 =$  \_\_\_\_\_
- (11) Which is greater 0.8 or  $\frac{7}{8}$ ? \_\_\_\_\_
- (12)  $30 \div 2.5 =$  \_\_\_\_\_
- (13)  $29 \times 89 =$  \_\_\_\_\_
- (14) The mean of 11, 15, and 37 is \_\_\_\_\_
- (15)  $28^2 =$  \_\_\_\_\_
- (16)  $\frac{4}{3} + \frac{4}{7} =$  \_\_\_\_\_ (improper fraction)
- (17)  $3 \times 94 + 94 \times 94 =$  \_\_\_\_\_
- (18)  $48 \times 111 =$  \_\_\_\_\_
- (19) What is the smallest number that 8 and 28 divide into with a remainder of 0? \_\_\_\_\_
- \*(20)  $479 \times 902 + 17 \times 899 =$  \_\_\_\_\_
- (21)  $23 \times 17 =$  \_\_\_\_\_
- (22)  $77 \times 1.1 =$  \_\_\_\_\_
- (23)  $112 \times 104 =$  \_\_\_\_\_
- (24)  $15 \times 3 \frac{4}{15} =$  \_\_\_\_\_
- (25) The multiplicative inverse of 1.25 is \_\_\_\_ (fraction)
- (26)  $1900 = 19 \times 83 + 19 \times$  \_\_\_\_\_
- (27)  $1 + 3 + 5 + \dots + 25 =$  \_\_\_\_\_
- (28) How many even numbers are between 25 and 40? \_\_\_\_\_
- (29)  $101 \times 96 =$  \_\_\_\_\_
- \*(30)  $83210 \div 417 =$  \_\_\_\_\_
- (31) An angle in an isosceles trapezoid has a measure of  $82^\circ$ . The sum of the two largest angles in the trapezoid is \_\_\_\_\_ $^\circ$
- (32) 38 has how many distinct prime divisors? \_\_\_\_\_
- (33)  $7^2 + 21^2 =$  \_\_\_\_\_
- (34) The sum of the integral divisors of 15 is \_\_\_\_\_
- (35) What is the sales tax on a \$45 item with an 7% sales tax rate? \$ \_\_\_\_\_
- (36) The mean of the first 21 even numbers is \_\_\_\_\_
- (37) The area of a square with side 4.5 is \_\_\_\_\_
- (38)  $33 \frac{1}{3} \times 48 =$  \_\_\_\_\_
- (39) If  $f(x) = x^2 - 4x + 4$ , then  $f(9) =$  \_\_\_\_\_
- \*(40)  $\sqrt{130109} =$  \_\_\_\_\_
- (41) The measure of each interior angle in a regular pentagon is \_\_\_\_\_ $^\circ$
- (42)  $\frac{4}{3} + \frac{3}{4} =$  \_\_\_\_\_ (mixed number)
- (43)  $1 + 2 + 3 + 4 + \dots + 60 =$  \_\_\_\_\_

- (44)  $\frac{4}{7} + \frac{7}{11} =$  \_\_\_\_\_ (mixed number)
- (45) The perimeter of a regular nonagon with edge 44 is \_\_\_\_\_
- (46)  $5^3 =$  \_\_\_\_\_
- (47) A regular polygon with an exterior angle of  $24^\circ$  and a side of 15 has a perimeter of \_\_\_\_\_
- (48) The 5<sup>th</sup> pentagonal number is \_\_\_\_\_
- (49)  $264_{12} =$  \_\_\_\_\_<sub>10</sub>
- \*(50)  $667 \times 901 =$  \_\_\_\_\_
- (51)  $15\frac{1}{6} \times 3\frac{1}{6} =$  \_\_\_\_\_ (mixed number)
- (52)  $21 \times \frac{21}{25} =$  \_\_\_\_\_ (mixed number)
- (53) A set with 8 elements has how many 2-element subsets? \_\_\_\_\_
- (54) How many distinct diagonals can be drawn inside a 13-sided polygon? \_\_\_\_\_
- (55) The area of an equilateral triangle with side 4 is  $k\sqrt{3}$ , then  $k =$  \_\_\_\_\_
- (56)  $202_8 - 45_8 =$  \_\_\_\_\_<sub>8</sub>
- (57) If  $f(x) = 3x^2$ , then  $f(11) - f(9) =$  \_\_\_\_\_
- (58)  $(3 \times 7 + 7^5) \div 8$  has a remainder of \_\_\_\_\_
- (59) The positive geometric mean of 2 and 18 is \_\_\_\_\_
- \*(60)  $16^2 + 63^2 =$  \_\_\_\_\_
- (61)  $3 + 6 + 9 + \dots + 42 =$  \_\_\_\_\_
- (62)  $(12_8)^2 =$  \_\_\_\_\_<sub>8</sub>
- (63)  $2^8 \times 5^7 =$  \_\_\_\_\_
- (64)  $16.5^2 - 13.5^2 =$  \_\_\_\_\_
- (65) The sum of the coefficients of  $(2x + 3)^2$  is \_\_\_\_\_
- (66) The area of a rhombus with diagonals 14 and 12 is \_\_\_\_\_
- (67)  $3^3 + 6^3 + 9^3 = 3^3 \times$  \_\_\_\_\_
- (68) If  $x^2 + 9x - 22 = (x - p)(x - q)$ , then the sum of  $p$  and  $q$  is \_\_\_\_\_
- (69)  $32^2 + 17^2 =$  \_\_\_\_\_
- \*(70) Find the volume of a regular hexahedron with edge 14. \_\_\_\_\_
- (71) If a trapezoid has area 64 and height 16, then the sum of its bases is \_\_\_\_\_
- (72) If  $f(x) = 13x + 47$ , then  $f(19) - f(8) =$  \_\_\_\_\_
- (73)  $1^3 + 2^3 + 3^3 + \dots + 7^3 =$  \_\_\_\_\_
- (74) The number of ways to arrange 7 people in a circle is \_\_\_\_\_
- (75) The probability of rolling three 5's consecutively when rolling a 6-sided die is \_\_\_\_\_
- (76)  $2 + 4 + 6 + 8 + \dots + n = 40(41)$ , then  $n =$  \_\_\_\_\_
- (77)  $\frac{1+3+5+\dots+87}{1+3+5+7} =$  \_\_\_\_\_
- (78) If  $8^{x+2} = 12$ , then  $8^{x+1} =$  \_\_\_\_\_ (decimal)
- (79)  $27 \times 37 =$  \_\_\_\_\_
- \*(80) 24 square miles = \_\_\_\_\_ acres

## 2017-2018 TMSCA Middle School Number Sense Key #2

- |                       |  |                        |                      |
|-----------------------|--|------------------------|----------------------|
| (1) 10090             | (23) 11648                                   | (44) $1\frac{16}{77}$  | (63) 20000000        |
| (2) 1800              | (24) 49                                      |                        | (64) 90              |
| (3) 238               | (25) $\frac{4}{5}$                           | (45) 396               | (65) 25              |
| (4) 85                | (26) 17                                      | (46) 125               |                      |
| (5) 45                | (27) 169                                     |                        | (66) 84              |
| (6) $\frac{15}{8}$    |  | (47) 225               | (67) 36              |
| (7) 90                | (28) 7                                       | (48) 35                |                      |
| (8) 256               | (29) 9696                                    | (49) 364               | (68) - 9             |
| (9) 198               | *(30) 190 - 209                              | *(50) 570919 - 631015  | (69) 1313            |
| *(10) 102484 - 113270 |  | (51) $48\frac{1}{36}$  | *(70) 2607 - 2881    |
| (11) $\frac{7}{8}$    | (31) 196                                     | (52) $17\frac{16}{25}$ | (71) 8               |
| (12) 12               | (32) 2                                       |                        | (72) 143             |
| (13) 2581             | (33) 490                                     | (53) 28                | (73) 784             |
| (14) 21               | (34) 24                                      |                        |                      |
| (15) 784              |  | (54) 65                | (74) 720             |
| (16) $\frac{40}{21}$  | (35) 3.15                                    |                        |                      |
| (17) 9118             | (36) 22                                      | (55) 4                 |                      |
| (18) 5328             | (37) 20.25, $20\frac{1}{4}$ , $\frac{81}{4}$ | (56) 135               | (75) $\frac{1}{216}$ |
| (19) 56               | (38) 1600                                    | (57) 120               | (76) 80              |
| *(20) 424974 - 469708 | (39) 49                                      | (58) 4                 | (77) 121             |
| (21) 391              | *(40) 343 - 378                              | (59) 6                 | (78) 1.5             |
| (22) 84.7             |  | *(60) 4014 - 4436      | (79) 999             |
|                       | (41) 108                                     | (61) 315               | *(80) 14592 - 16128  |
|                       | (42) $2\frac{1}{12}$                         | (62) 144               |                      |
|                       | (43) 1830                                    |                        |                      |