





2022-2023 TMSCA Middle School Number Sense Test 9

(1)  $1787 + 213 =$  \_\_\_\_\_

(22)  $53 \times 25 =$  \_\_\_\_\_

(2)  $2023 - 1024 =$  \_\_\_\_\_

(23) The set {c,o,w,b,y,s} has \_\_\_\_\_ subsets

(3)  $8.7 - 3.8 =$  \_\_\_\_\_ (decimal)

(24)  $\text{LCM}(16,20) \times \text{GCD}(16,20) =$  \_\_\_\_\_

(4)  $0.8333\dots =$  \_\_\_\_\_ (fraction)

(25)  $4 \text{ yards} + 6 \text{ inches} =$  \_\_\_\_\_ inches

(5)  $36 \times 15 =$  \_\_\_\_\_

(26) The cube root of  $-343$  is \_\_\_\_\_

(6)  $87 \div 9 =$  \_\_\_\_\_ (mixed number)

(27)  $31^2 + 93^2 =$  \_\_\_\_\_

(7)  $23 + 29 + 35 =$  \_\_\_\_\_

(28)  $0.325 =$  \_\_\_\_\_ (fraction)

(8)  $\frac{2}{3} + \frac{5}{9} =$  \_\_\_\_\_ (mixed number)

(29)  $65^2 =$  \_\_\_\_\_

(9)  $13(11) + 8(11) - 10(11) =$  \_\_\_\_\_

\*(30)  $\sqrt{48} \times \sqrt{84} \times \sqrt{119} =$  \_\_\_\_\_

\*(10)  $1823 + 345 + 38 =$  \_\_\_\_\_

(31) If the perimeter of a square is 100 in, then the area = \_\_\_\_\_  $\text{in}^2$

(11)  $12345 \div 3$  has a remainder of \_\_\_\_\_

(32) If 8 ads cost \$6.40, then 12 ads cost \$ \_\_\_\_\_

(12)  $62 \times 68 =$  \_\_\_\_\_

(33) If  $f(x) = x^2 - 12x + 36$ , then  $f(22) =$  \_\_\_\_\_

(13)  $11^3 =$  \_\_\_\_\_

(34) If  $8^x = 3$ , then  $8^{x+3} =$  \_\_\_\_\_

(14)  $37 \times 73 =$  \_\_\_\_\_

(35)  $0.242424\dots =$  \_\_\_\_\_ (fraction)

(15)  $90 \times 95 =$  \_\_\_\_\_

(36)  $\frac{1}{3}$  of a gallon = \_\_\_\_\_ cubic inches

(16)  $3\frac{7}{8} + 5\frac{3}{4} =$  \_\_\_\_\_ (mixed number)

(37)  $505 \times 18 =$  \_\_\_\_\_

(17) 20% of 75 plus 15 = \_\_\_\_\_

(38) 642 base 8 = \_\_\_\_\_ base 2

(18)  $9\frac{3}{4} \times 8\frac{1}{3} =$  \_\_\_\_\_ (mixed number)

(39)  $S = \{1, 5, 13, 25, 41, 61, a, 113, \dots\}$ .  $a =$  \_\_\_\_\_

(19)  $\text{CCXL} + \text{XV} =$  \_\_\_\_\_ (Arabic Numeral)

\*(40) 300 ft/s = \_\_\_\_\_ mph

\*(20)  $32876 \div 18.1 =$  \_\_\_\_\_

(41) The roots of  $x^3 - x^2 - 14x + 24 = 0$  are P, Q and R.  $(P+Q+R) + (PQR) =$  \_\_\_\_\_

(21) If Tom has \$9.75 in quarters, then he has \_\_\_\_\_ quarters

(42)  $\frac{5}{16} =$  \_\_\_\_\_ (decimal)

- (43) The hypotenuse of a triangle with legs of 9 in and 40 in is \_\_\_\_\_ in
- (44)  $429 \times 56 =$  \_\_\_\_\_
- (45)  $134769 \div 11$  has a remainder of \_\_\_\_\_
- (46) How many integers between 30 and 60 are divisible by 8? \_\_\_\_\_
- (47)  $0.285 =$  \_\_\_\_\_ (fraction)
- (48) The smaller root of  $(3x + 1)^2 = \frac{25}{36}$  is \_\_\_\_\_
- (49)  $533_6 - 224_6 =$  \_\_\_\_\_<sub>6</sub>
- \*(50)  $\sqrt{575} \times \sqrt{681} =$  \_\_\_\_\_
- (51)  $333 \times 111 =$  \_\_\_\_\_
- (52) The area of an equilateral triangle with a side = 16 cm is \_\_\_\_\_  $\sqrt{3}$  cm<sup>2</sup>
- (53) If  $f(x) = 2x^2 - 2$ , then  $f(f(3)) =$  \_\_\_\_\_
- (54)  $(407)^2 =$  \_\_\_\_\_
- (55)  $95 \times 115 =$  \_\_\_\_\_
- (56)  $15^{-3} + 15^{-1} =$  \_\_\_\_\_
- (57)  $(1004)^2 =$  \_\_\_\_\_
- (58)  $555 \times \frac{4}{27} =$  \_\_\_\_\_ (mixed number)
- (59)  $0.636363... + 0.222... =$  \_\_\_\_\_
- \*(60)  $\pi^4 \times e^6 =$  \_\_\_\_\_
- (61)  $64\frac{2}{7}\% =$  \_\_\_\_\_ (fraction)
- (62)  $39^2 + 39 =$  \_\_\_\_\_
- (63) The sixth hexagonal number is \_\_\_\_\_
- (64) The sum of the positive integral divisors of 45 is \_\_\_\_\_
- (65)  $16^3 - 15^3 =$  \_\_\_\_\_
- (66)  $\frac{4}{15} + \frac{4}{35} + \frac{4}{63} =$  \_\_\_\_\_ (fraction)
- (67) If  $36^2 - 24^2 = 24k$ , then  $k =$  \_\_\_\_\_
- (68) 24% of  $433\frac{1}{3} =$  \_\_\_\_\_
- (69)  $0.468468468... =$  \_\_\_\_\_ (fraction)
- \*(70)  $15 \times 25 \times 35 =$  \_\_\_\_\_
- (71)  $(.375)^{-2} =$  \_\_\_\_\_ (mixed number)
- (72)  $125 \div 0.41666... =$  \_\_\_\_\_
- (73)  $4.0333... =$  \_\_\_\_\_ (mixed number)
- (74)  $\frac{3}{8}$  of one mile = \_\_\_\_\_ feet
- (75) How many distinct 5-letter arrangements can be made from the letters of the word happy? \_\_\_\_\_
- (76) The volume of a 12 by 6 by 15 rectangular prism is \_\_\_\_\_
- (77)  $14\frac{4}{5} \times 10\frac{5}{7} =$  \_\_\_\_\_ (mixed number)
- (78) The smallest angle formed by the hands of a clock at 1:40 is \_\_\_\_\_<sup>o</sup>
- (79)  $\frac{13}{16} - \frac{40}{47} =$  \_\_\_\_\_
- \*(80) The volume of a square pyramid with each base edge = 19 cm and height = 19 cm is \_\_\_\_\_ cm<sup>3</sup>

22-23 TMSCA MSNS Test 9 Key

- |                      |                      |                         |                        |
|----------------------|----------------------|-------------------------|------------------------|
| (1) 2000             | (22) 1325            | (43) 41                 | (63) 66                |
| (2) 999              | (23) 64              | (44) 24024              | (64) 78                |
| (3) 4.9              | (24) 320             | (45) 8                  | (65) 721               |
| (4) $\frac{5}{6}$    | (25) 150             | (46) 4                  | (66) $\frac{4}{9}$     |
| (5) 540              | (26) $-7$            | (47) $\frac{57}{200}$   | (67) 30                |
| (6) $9\frac{2}{3}$   | (27) 9610            | (48) $-\frac{11}{18}$   | (68) 104               |
| (7) 87               | (28) $\frac{13}{40}$ | (49) 305                | (69) $\frac{52}{111}$  |
| (8) $1\frac{2}{9}$   | (29) 4225            | *(50) 595–657           | *(70) 12469–13781      |
| (9) 121              | *(30) 659–727        | (51) 36963              |                        |
| *(10) 2096–2316      | (31) 625             | (52) 64                 | (71) $7\frac{1}{9}$    |
| (11) 0               | (32) 9.60            | (53) 510                | (72) 300               |
| (12) 4216            | (33) 256             | (54) 165649             | (73) $4\frac{1}{30}$   |
| (13) 1331            | (34) 1536            | (55) 10925              | (74) 1980              |
| (14) 2701            | (35) $\frac{8}{33}$  | (56) $\frac{226}{3375}$ | (75) 60                |
| (15) 8550            | (36) 77              | (57) 1008016            | (76) 1080              |
| (16) $9\frac{5}{8}$  | (37) 9090            | (58) $82\frac{2}{9}$    | (77) $158\frac{4}{7}$  |
| (17) 30              | (38) 110100010       | (59) $\frac{85}{99}$    | (78) 170               |
| (18) $81\frac{1}{4}$ | (39) 85              | *(60) 37333–41262       | (79) $-\frac{29}{752}$ |
| (19) 255             | *(40) 195–214        | (61) $\frac{9}{14}$     | *(80) 2173–2400        |
| *(20) 1726–1907      | (41) $-23$           | (62) 1560               |                        |
| (21) 39              | (42) .3125           |                         |                        |