

2016-2017 TMSCA Middle School Number Sense Test 13

- (1) $936 - 639 =$ _____
- (2) $2017 \times 0.3 =$ _____ (decimal)
- (3) $44 \times 8 =$ _____
- (4) $4935 \div 7 =$ _____
- (5) $0.76 =$ _____ (fraction)
- (6) $244 \div 6$ has a remainder of _____
- (7) $\frac{7}{11} - \frac{3}{7} =$ _____ (fraction)
- (8) $12 \times 21 \div 7 - 4 =$ _____
- (9) $\frac{9}{4} \times \frac{8}{3} =$ _____
- *(10) 2017 yards = _____ feet
- (11) Which of the following is smaller, $\frac{8}{13}$ or $\frac{5}{8}$? _____
- (12) $84 \times 86 =$ _____
- (13) $66 \times 64 + 16 \times 66 =$ _____
- (14) $9 \div \frac{3}{7} =$ _____
- (15) $28 \times 28 =$ _____
- (16) $12 \times 74 =$ _____
- (17) $11 \times 79 =$ _____
- (18) $1 + 2 + 3 + 4 + 5 + \dots + 18 =$ _____
- (19) What is the greatest number that divides 15 and 55 with a remainder of 0? _____
- *(20) $889 \times 625 =$ _____
- (21) $0.8888\dots =$ _____ (fraction)
- (22) $11340 = 108 \times$ _____
- (23) $76 \times 36 =$ _____
- (24) 18 has how many distinct prime divisors? _____
- (25) The additive inverse of 13 is _____
- (26) $1 + 3 + 5 + \dots + 69 =$ _____
- (27) The square root of 676 is _____
- (28) 18% of 45 is _____ (decimal)
- (29) $(19 + 20 + 21 + 22 + 23) \div 10$ has a remainder of _____
- *(30) $\sqrt{48721} =$ _____
- (31) The perimeter of a rectangle with area 45 and length 9 is _____
- (32) $43_8 =$ _____₁₀
- (33) $4\frac{3}{8} \times 4\frac{5}{8} =$ _____ (mixed number)
- (34) $4^2 + 12^2 =$ _____
- (35) 25 has how many positive integral divisors? _____
- (36) 9 gallons = _____ quarts
- (37) The sum of the positive integral divisors of 18 is _____
- (38) $48 \times 41 =$ _____
- (39) If $x = 14$, $y = 9$, and k is a positive integer, and $x^2 + 4xy + 4y^2 = k^2$, then $k =$ _____
- *(40) 68% of 6250 is _____
- (41) If $\frac{4}{x-3} = \frac{2}{7}$, then $x =$ _____
- (42) If 12 pairs of shoes cost \$540.00, then 4 pairs of shoes cost \$ _____
- (43) The area of a trapezoid with bases 15 and 43 and a height of 30 is _____

- (44) $\frac{9}{11} + \frac{11}{9} =$ _____ (mixed number)
- (45) The perimeter of a regular octagon with sides 12.5 is _____
- (46) If $f(x) = \sqrt{x^2 - 5^2}$, then $f(13) =$ _____
- (47) $26^2 - 14^2 =$ _____
- (48) The sum of the interior angles of a hexagon exceeds the sum of the interior angles of a triangle by _____ °
- (49) $513_8 =$ _____₂
- *(50) $35 \times 17 \times 403 =$ _____
- (51) $4\frac{2}{9} \times 14\frac{2}{9} =$ _____ (mixed number)
- (52) $24 \times \frac{27}{29} =$ _____ (mixed number)
- (53) A set with 8 elements has how many subsets with 6 elements? _____
- (54) The area of an equilateral triangle is $64\sqrt{3}$ has a side length of _____
- (55) The slope of a line with x-intercept (4,0) and passing through (7, 7) is _____
- (56) The arithmetic sequence 11, 23, 35, ..., 143 has _____ terms
- (57) If $f(x) = 7x + 2$, then $f(20) - f(10) =$ _____
- (58) $8^{12} \div 16$ has a remainder of _____
- (59) $\sqrt{\frac{361}{25}} =$ _____ (mixed number)
- *(60) $\sqrt[3]{147 \times 150 \times 153 \times 27} =$ _____
- (61) If $x^4 = 81$, then $5x^2 =$ _____
- (62) $46^2 + 56^2 =$ _____
- (63) The largest integer solution of $4x - 7 < 38$ is _____
- (64) $96 \times 108 =$ _____
- (65) $(5^2 + 10^2) + (5^2 + 15^2) + (5^2 + 35^2) = 5^2 \times$ _____
- (66) $(23_7)^2 - (22_7)^2 =$ _____₇
- (67) The x-intercept and y-intercept of $4x + 5y = 100$ are (p,0) and (0,q) respectively. $p + q =$ _____
- (68) How many positive integers less than or equal to 30 are relatively prime to 30? _____
- (69) If $\sqrt{3 \times 6 \times 9} = r\sqrt{s}$ and s has no perfect square divisors other than 1, then $r + s =$ _____
- *(70) The volume of a rectangular prism with length 39, width 41, and height 70 is _____
- (71) P and Q are roots of $4x^2 - 47x + 36 = 0$. The geometric mean of P and Q is _____
- (72) The sum of the 10th and 11th triangular numbers is _____
- (73) The sum of the integral solutions of $|x - 20| \leq 7$ is _____
- (74) If $4^{3x+2} = 2^{34}$, then $x =$ _____
- (75) $f(x)$ is a parabola with a vertex of (3, -4) and $g(x) = 2f(x - 4)$. $g(x)$ has a vertex of (h,k). $h + k =$ _____
- (76) The probability of choosing a one digit number that is a divisor of 12 is _____
- (77) $1_9 + 2_9 + 3_9 + \dots + 10_9 + 11_9 =$ _____₉
- (78) If $\sqrt[4]{7x+4} - 1 = 2$, then $x =$ _____
- (79) If $937^2 = 877969$, then $950 \times 924 =$ _____
- *(80) 19 miles = _____ feet

2016-2017 TMSCA Middle School Number Sense Key #13

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|-----------------------|------------------------|--------------------------------------|--------------------------|
| (1) 297 | (23) 2736 | (44) $2\frac{4}{99}$ | (63) 11 |
| (2) 605.1 | (24) 2 | | (64) 10368 |
| (3) 352 | (25) - 13 | (45) 100 | (65) 65 |
| (4) 705 | (26) 1225 | (46) 12 | (66) 45 |
| (5) $\frac{19}{25}$ | (27) 26 | (47) 480 | |
| (6) 4 | (28) 8.1 | | (67) 45 |
| (7) $\frac{16}{77}$ | (29) 5 | (48) 540 | (68) 8 |
| (8) 32 | *(30) 210 - 231 | (49) 101001011 | |
| (9) 6 | (31) 28 | *(50) 227796 - 251774 | (69) 11 |
| *(10) 5749 - 6353 | (32) 35 | (51) $60\frac{4}{81}$ | *(70) 106334 - 117526 |
| (11) $\frac{8}{13}$ | (33) $20\frac{15}{64}$ | (52) $22\frac{10}{29}$ | (71) 3 |
| (12) 7224 | (34) 160 | | |
| (13) 5280 | (35) 3 | (53) 28 | (72) 121 |
| (14) 21 | (36) 36 | (54) 16 | (73) 300 |
| (15) 784 | (37) 39 | | (74) 5 |
| (16) 888 | (38) 1968 | (55) $\frac{7}{3}$ or $2\frac{1}{3}$ | |
| (17) 869 | (39) 32 | (56) 12 | (75) - 1 |
| (18) 171 | *(40) 4038 - 4462 | (57) 70 | |
| (19) 5 | (41) 17 | (58) 0 | (76) $\frac{1}{2}$ or .5 |
| *(20) 527844 - 583406 | (42) 180.00 | (59) $3\frac{4}{5}$ | (77) 61 |
| (21) $\frac{8}{9}$ | | *(60) 428 - 472 | (78) 11 |
| (22) 105 | (43) 870 | (61) 45 | (79) 877800 |
| | | (62) 5252 | *(80) 95,304 - 105,336 |