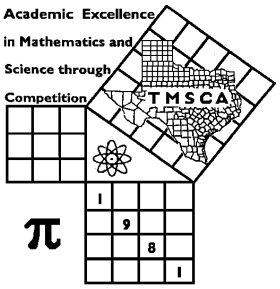
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

PLACE LABEL BELOW

Name:_____ School:_____

SS/ID Number:_____ City:_____

Grade: 4 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A



TMSCA MIDDLE SCHOOL

NUMBER SENSE

TEST #9©

JANUARY 26, 2019

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.

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2018 – 2019 TMSCA Middle School Number Sense Test #9

(1) $28 + 33 + 38 + 43 + 48 =$ _____

(2) $94 \times 9 =$ _____

(3) $\frac{3}{8} + \frac{2}{9} =$ _____ **(fraction)**

(4) $232 \times 25 =$ _____

(5) $\frac{4}{7} \times 91 =$ _____

(6) $18 \times 13 + 18 \times 17 =$ _____

(7) $687 \div 6$ **has a remainder of** _____

(8) $(5 + 8 + 11) \div 4 + 7 \times 4 =$ _____

(9) $934821 \div 3 =$ _____

***(10)** $51 \times 2019 =$ _____

(11) $33 \times 50 =$ _____

(12) $21 \times 29 =$ _____

(13) $623 \div 9 =$ _____ **(mixed number)**

(14) $45 \times 82 =$ _____

(15) $84 \times 66\frac{2}{3} =$ _____

(16) $3.5^2 =$ _____ **(decimal)**

(17) $116 \times 16 =$ _____

(18) $4\frac{2}{3}\% =$ _____ **(fraction)**

(19) $4900 = 63 \times 77 +$ _____

***(20)** $281 \times 125 =$ _____

(21) 6 gallons + 3 pints = _____ **pints**

(22) $11336 \div 109 =$ _____

(23) The largest prime divisor of 93 is _____

(24) The GCD of 48 and 88 is _____

(25) The multiplicative inverse of $\frac{11}{15}$ **is** _____ **(mixed number)**

(26) $37 \times 96 =$ _____

(27) $1 + 2 + 3 + \ldots + 30 =$ _____

(28) $15 \div 11 - 9 + 62 \div 11 =$ _____

(29) $997 \times 101 =$ _____

***(30) 47 miles =** _____ **feet**

(31) If $8x + 3 = 59$, **then** $x^3 =$ _____

(32) $22^2 + 44^2 =$ _____

(33) $2^{16} \times 5^{12}$ **has** _____ **positive integral divisors**

(34) $42\frac{3}{16} = 6\frac{1}{4} \times$ _____ **(mixed number)**

(35) How many fractions between 1 and 3 have a denominator of 9 with an integer numerator? _____

(36) $1 + 3 + 5 + \ldots + k = 172^2$. $k =$ _____

(37) The area of a square with diagonal 14 is _____

(38) $924 \div 11 =$ _____

(39) How many perfect squares are between 250 and 450? _____

***(40)** $\sqrt{834157} =$ _____

(41) If an angle of a parallelogram has measure 65°, then the measure of each adjacent angle is _____°

(42) If $x = 7$ **and** $y = 3$, **then** $16x^2 - 24xy + 9y^2 =$ _____

(43) Find the sum of the bases of a trapezoid with area 210 and height 15. _____

(44) $\sqrt{12769}$ =_____

(45) $43 \times \frac{5}{7}$ =_____ (mixed number)

(46) If f(x) = $\sqrt{8x + 25}$, then f(12) =_____

(47) The exterior angle of a regular nonagon has a measure of_____°

(48) $5858 = 73^2 + k^2$. k > 0, k =_____

(49) If $x^2 = 6561$, then (x – 10)(x + 10) = _____

*(50) 285714×147 =_____

(51) $\frac{6!+9!}{7!}$ =_____ (mixed number)

(52) $18 \times \frac{22}{25}$ = _____ (mixed number)

(53) Find the slope of the line passing through (4,1) with equation y – 4 = m(x + 5). _____

(54) The two solutions of $|x - c| = d$ are – 20 and 32, d = _____

(55) The area of an equilateral triangle with side 18 is $k\sqrt{3}$, k =_____

(56) The harmonic mean of 4 and 10 is_____

(57) The next term of 7, 9, 16, 25, 41, … is _____

(58) The 14th pentagonal number is_____

(59) The length of the inner diagonal of a rectangular prism of size 12 by 4 by 3 is_____

*(60) $\sqrt[3]{509 \times 1350}$ =_____

(61) 1.474747… = _____ (improper fraction)

(62) 75 × 65 =_____

(63) 144 + 72 + 9 =_____base 12

(64) $\frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{8}$ =_____ (fraction)

(65) The sum of the integral solutions of $|x - 6| \leq 7$ is_____

(66) The sum of the infinite geometric series 16 + 10 + 6.25 + … =_____

(67) How many distinct diagonals does a regular 28-sided polygon have? _____

(68) The sum of the integral solutions of $-3 \leq x \leq 10$ is_____

(69) P and Q are roots of $f(x) = x^2 + 11x + 13$. $P^2 + 2PQ + Q^2 - 5PQ$ = _____

*(70) The surface area of a regular tetrahedron with edge 20 is_____

(71) If $\log_6 x + \log_6 3 = 2$, then x = _____

(72) If $f(x) = 2x^2 + 9x - 11$, then f(x + 3) has an axis of symmetry of x =_____

(73) Find the probability of exactly 2 tails occurring when flipping 5 coins._____

(74) How many distinct 6-letter arrangements can be made from {c,a,l,l,e,r}?_____

(75) How many positive integers less than or equal to 42 are relatively prime to 42?_____

(76) $4x^2 + 6x + c = 0$ has one distinct real root, c =____

(77) If the x-coefficient of (3x + 5)(4x + r) is 41, then r =_____

(78) f(7x + 2) = 11x + 1. f(30) = _____

(79) 1010111_2 = _____base 8

*(80) 44.4% of 81.81% of 3289 = _____

2018-2019 TMSCA Middle School Number Sense Key #9

(1) 190

(2) 846

(3) $\frac{43}{72}$

(4) 5800

(5) 52

(6) 540

(7) 3

(8) 34

(9) 311607

***(10) 97821 – 108117**

(11) 1650

(12) 609

(13) $69\frac{2}{9}$

(14) 3690

(15) 5600

(16) 12.25

(17) 1856

(18) $\frac{7}{150}$

(19) 49

***(20) 33369 – 36881**

(21) 51

(22) 104

(23) 31

(24) 8

(25) $1\frac{4}{11}$

(26) 3552

(27) 465

(28) – 2

(29) 100697

***(30) 235752 – 260568**

(31) 343

(32) 2420

(33) 221

(34) $6\frac{3}{4}$

(35) 17

(36) 343

(37) 98

(38) 84

(39) 6

***(40) 868 – 958**

(41) 115

(42) 361

(43) 28

(44) 113

(45) $30\frac{5}{7}$

(46) 11

(47) 40

(48) 23

(49) 6461

***(50) 39899961– 44099955**

(51) $72\frac{1}{7}$

(52) $15\frac{21}{25}$

(53) $-\frac{1}{3}$

(54) 26

(55) 81

(56) $\frac{40}{7}$ **or** $5\frac{5}{7}$

(57) 66

(58) 287

(59) 13

***(60) 84 – 92**

(61) $\frac{146}{99}$

(62) 4875

(63) 169

(64) $\frac{1}{3}$

(65) 90

(66) $\frac{128}{3}$ **or** $42\frac{2}{3}$

(67) 350

(68) 49

(69) 56

***(70) 659 – 727**

(71) 12

(72) $-\frac{21}{4}, -5\frac{1}{4}$**, or – 5.25**

(73) $\frac{5}{16}$

(74) 360

(75) 12

(76) $\frac{9}{4}$ **or** $2\frac{1}{4}$ **or 2.25**

(77) 7

(78) 45

(79) 127

***(80) 1135 – 1254**