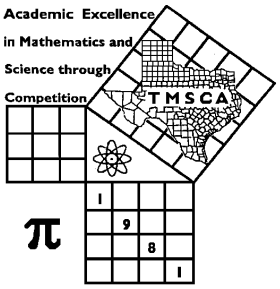
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 #10©

FEBRUARY 2, 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 #10

(1) $246 \div 6 =$ _____

(2) $937 - 739 =$ _____

(3) $\frac{5}{8} =$ _____ (decimal)

(4) $3 \times 14 \times 11 =$ _____

(5) $\frac{9}{13} + \frac{1}{4} =$ _____ (fraction)

(6) $\frac{7}{15} \times 90 =$ _____

(7) $43215 \div 9$ has a remainder of _____

(8) $6^3 =$ _____

(9) $4 + 3 \times 12 \div 4 - 7 =$ _____

***(10)** $123 + 1234 + 12345 =$ _____

(11) $12 \times 93 =$ _____

(12) $29^2 =$ _____

(13) $42 \times 48 =$ _____

(14) $86 \times 26 =$ _____

(15) $48 \times 66\frac{2}{3} =$ _____

(16) $107 \times 25 =$ _____

(17) $5\frac{4}{7}\% =$ _____ (fraction)

(18) $5300 - 53 \times 80 =$ _____

(19) Which is larger $\frac{4}{11}$ or $\frac{35}{99}$? _____

***(20)** $888 \times 361 =$ _____

(21) $11448 = 108 \times$ _____

(22) $0.636363\ldots =$ _____ (fraction)

(23) $48271 \div 11$ has a remainder of _____

(24) The sum of the distinct prime divisors of 98 is ___

(25) $8 \times 21\frac{3}{8} =$ _____

(26) $1 + 3 + 5 + \ldots + 35 =$ _____

(27) $7! \div 42 =$ _____

(28) The reciprocal of 2.75 is _____ (fraction)

(29) Find the LCM of 4, 9, and 12. _____

***(30)** $719 \times 321 =$ _____

(31) The perimeter of a right triangle with legs of 6 and 8 is _____

(32) $8\frac{3}{7} \times 8\frac{4}{7} =$ _____ (mixed number)

(33) $16 \times 16 + 48 \times 48 =$ _____

(34) How many fractions between $1\frac{1}{3}$ and $2\frac{2}{3}$ have a denominator of 6 with an integer numerator? _____

(35) $2^4 \times 3^4 \times 7^4$ has _____ positive integral divisors

(36) $\frac{3}{11} + \frac{5}{11} + \frac{7}{11} + \frac{9}{11} + 1 =$ _____ (mixed number)

(37) 41 base 6 = _____ base 10

(38) $48 \times 99 =$ _____

(39) If $2x + 9 = 31$, then $2x - 9 =$ _____

***(40)** $\sqrt{96413} =$ _____

(41) 42% of 72 is 18% of _____

(42) A square with diagonal $4\sqrt{7}$ has area _____

(43) If $2 + 4 + 6 + 8 + \ldots + 84 = 14k$, then $k =$ _____

(44) $96 \times 106 =$ _____

(45) $32^2 + 38^2 =$ _____

(46) If f(x) = $\sqrt{(x+1)^3}$, then f(3) = _____

(47) The exterior angle of a regular n-sided regular polygon is 45°. n = _____

(48) $3\frac{3}{5} + \frac{5}{3}$ = _____ (mixed number)

(49) $85^2 + 42^2$ = _____

***(50)** $\sqrt{145} \times \sqrt{170} \times \sqrt{195}$ = _____

(51) $24 \times \frac{21}{19}$ = _____ (mixed number)

(52) $12\frac{1}{7} \times 9\frac{1}{7}$ = _____ (mixed number)

(53) The sum of the solutions of $|x - 8| + 6 = 17$ is _____

(54) The harmonic mean of 5 and 11 is _____

(55) f(x) = mx + 15 and f(13) – f(3) = 90. m = _____

(56) A 23-sided polygon has _____ distinct diagonals

(57) $(45_8)^2$ = _____ 8

(58) If an equilateral triangle has area $121\sqrt{3}$, then the side of the triangle is _____

(59) $16^3 \div 8^3 \times 4^3$ = _____

***(60)** The 40th pentagonal number is _____

(61) If x(x – 2) < 120, then the largest integral value of x is _____

(62) $374_9 + 456_9$ = _____ 9

(63) f(x) = $x^3 - 6x^2 + 11x - 7$. f(6) = _____

(64) The sum of the 5th triangular number and the 5th pentagonal number is _____

(65) If $\frac{p}{q} + \frac{q}{p} = 2\frac{25}{126}$, where p and q are relatively prime, then $p + q$ = _____

(66) If 3x + 4y = 24 has the same y-intercept as 6x – By = 72, then B = _____

(67) The number of integral solutions of $|x - 13| \leq 10.5$ is _____

(68) The sum of the positive integral divisors of 56 is _____

(69) f(x) = $4x^2 + 5x - 3$. f(15) – f(5) = _____

***(70)** The area of a circle with radius 25 is _____

(71) The number of positive integers that are less than 30 that are relatively prime to 30 is _____

(72) If f(x) = $3x^2 + kx + 8$ and f(x) has an axis of symmetry of x = 5 then k = _____

(73) If f(x) = $4x^2 + 7x + 13$ has x-intercepts of p and q, then pq – p – q = _____

(74) 806^2 = _____

(75) If $6x^2 + 9x + c = 0$ has 1 distinct real root, c = ____

(76) $18^{1.5} = a\sqrt{b}$, where b has no perfect square divisors greater than 1, then a = _____

(77) If f(x) is linear with slope $\frac{4}{3}$ and f(4) = 12, then the x-intercept of f(x) is _____

(78) If $5^5 \times 5^2 \times 5^{0.8} \times ... = 5^k$, then *k* = _____

(79) How many distinct 5-letter arrangements can be made from {s,a,l,s,a}? _____

***(80)** How many perfect squares are between 5000 and 50000? _____

2018-2019 TMSCA Middle School Number Sense Key #10

(1) 41

(2) 198

(3) .625

(4) 462

(5) $\frac{49}{52}$

(6) 42

(7) 6

(8) 216

(9) 6

***(10) 13017 – 14387**

(11) 1116

(12) 841

(13) 2016

(14) 2236

(15) 3200

(16) 2675

(17) $\frac{39}{700}$

(18) 1060

(19) $\frac{4}{11}$

***(20) 304540 – 336596**

(21) 106

(22) $\frac{7}{11}$

(23) 3

(24) 9

(25) 171

(26) 324

(27) 120

(28) $\frac{4}{11}$

(29) 36

***(30) 219260 – 242338**

(31) 24

(32) $72\frac{12}{49}$

(33) 2560

(34) 7

(35) 125

(36) $3\frac{2}{11}$

(37) 25

(38) 4752

(39) 13

***(40) 295 – 326**

(41) 168

(42) 56

(43) 129

(44) 10176

(45) 2468

(46) 8

(47) 8

(48) $5\frac{4}{15}$

(49) 8989

***(50) 2083 – 2302**

(51) $26\frac{10}{19}$

(52) $111\frac{1}{49}$

(53) 16

(54) $\frac{55}{8}$**,** $6\frac{7}{8}$**, or 6.875**

(55) 9

(56) 230

(57) 2531

(58) 22

(59) 512

***(60) 2261 – 2499**

(61) 11

(62) 841

(63) 59

(64) 50

(65) 23

(66) -12

(67) 21

(68) 120

(69) 850

***(70) 1866 – 2061**

(71) 8

(72) – 30

(73) 5

(74) 649636

(75) $\frac{27}{8}$**,** $3\frac{3}{8}$**, or 3.375**

(76) 54

(77) – 5

(78) $\frac{25}{3}$ **or** $8\frac{1}{3}$

(79) 30

***(80) 146 – 160**