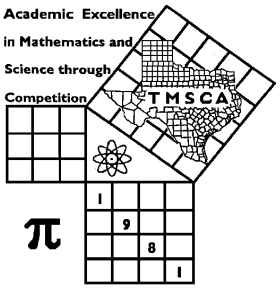
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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 #3©

NOVEMBER 3, 2018

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 #3

(1) 24×8 = _____

(2) 11×78 = _____

(3) $142863 \div 7$ = _____

(4) 144×25 = _____

(5) $243 \div 5$ = _____ (decimal)

(6) $0.333\ldots$ = _____ (fraction)

(7) $278 \div 6$ has a remainder of _____

(8) 15^2 = _____

(9) 15×48 = _____

***(10)** $417 - 219 + 824$ = _____

(11) 75×44 = _____

(12) 94×96 = _____

(13) $2349 = 87 \times$ _____

(14) $\frac{1+3+5+7+9+11+13+15+17}{1+3+5}$ = _____

(15) 68×72 = _____

(16) The mean of 18, 32, 40 and 60 is _____

(17) $108 \times 16\frac{2}{3}$ = _____

(18) $84 \times 11\frac{1}{7}$ = _____

(19) $37 \times 29 \times 3$ = _____

***(20)** 729×125 = _____

(21) 34×3.6 = _____ (decimal)

(22) 374×101 = _____

(23) 2347 cm = _____ meters

(24) The GCD of 105 and 60 is _____

(25) The multiplicative inverse of $\frac{5}{8}$ is _____ (decimal)

(26) The LCM of 18 and 42 is _____

(27) $\frac{2}{7}+\frac{4}{7}+\frac{6}{7}+\cdots+\frac{18}{7}$ = _____ (mixed number)

(28) The area of a triangle with base 18 and height 24 is _____

(29) $5439 \div 111$ = _____

***(30)** $382125 \div 437$ = _____

(31) 125^2 = _____

(32) $24^2 + 72^2$ = _____

(33) 19 pints = _____ cups

(34) $4\frac{4}{5} \times 5\frac{1}{5}$ = _____ (mixed number)

(35) The sum of the prime divisors of 14 is _____

(36) If $1 + 3 + 5 + \ldots + k = 73^2$, then k = _____

(37) $7\frac{3}{8} \times 7\frac{5}{8}$ = _____ (mixed number)

(38) 210 has how many positive integral divisors? ____

(39) 43×27 = _____

***(40)** $444 \times \sqrt{6561}$ = _____

(41) 5 ft^2 = _____ in^2

(42) $2\frac{16}{165} = \frac{11}{15} +$ _____ (improper fraction)

(43) 6^3 = _____

(44) $\sqrt{4356}$ = _____

(45) The median of a trapezoid with height 16 and bases of 14 and 30 is _____

(46) Find the perimeter of a regular undecagon with side length 93._____

(47) The 6^{th} pentagonal number is_____

(48) $86^2 - 15^2 =$_____

(49) A regular polygon with an interior angle of 135° has how many sides?_____

***(50)** $\sqrt{170} \times \sqrt[3]{2200} =$_____

(51) If a rhombus has area 72 and one diagonal 9, then the other diagonal is_____

(52) $19 \times \frac{19}{22} =$_____(mixed number)

(53) The two solutions of $|x - c| = d$ are 10 and 18, the value of c is _____

(54) The slope of a line with x-intercept 2 and y-intercept 9 is_____

(55) $94_{11} =$ _____$_{10}$

(56) If f(2x + 3) = 5x + 7, then f(11) =_____

(57) The geometric mean of 8 and 10 is $a\sqrt{b}$, where b has no perfect square divisor other than 1, a + b =_____

(58) A regular heptagon has _____ distinct diagonals

(59) $2^{16} \div 17$ has a remainder of _____

***(60)** The area of an equilateral triangle with side 30 is_____

(61) The set {j,o,r,d,a,n,s} has how many 4-element subsets? _____

(62) $155^2 =$_____

(63) $85 \times 45 =$ _____

(64) $\frac{1}{12} + \frac{1}{20} + \frac{1}{30} + \frac{1}{6} =$ _____(fraction)

(65) $f(x) = 3x^2 - 15$. $f(12) - f(8) =$_____

(66) $\left(63_9\right)^2 =$ _____$_9$

(67) The number of integral solutions of $|x - 11| \le 13$ is_____

(68) $1 + 2 + 2^2 + 2^3 + 2^4 + 2^5 =$_____

(69) Find the slope of a line perpendicular to 3x – 0.5y = 12._____

***(70)** The volume of a rectangular prism with dimensions 14 by 15 by 16 is _____

(71) $2400 = 72 \times 33 +$ _____

(72) If $f(x) = x^2 - 8x + 3$, then f(x + 2) has an axis of symmetry of x =_____

(73) Find the probability of rolling a sum of 6 or 8 when rolling two 6-sided die._____

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

(75) How many real roots does $f(x) = 2(x - 4)^2 - 7$ have?_____

(76) $f(x) = 2x^3 - 7x^2 + 2x + 11$. f(5) =_____

(77) $9^{\frac{5}{2}} =$_____

(78) $f(x) = x^3 + bx^2 + cx + d$ has roots P, Q and R. The arithmetic mean of P, Q, and R is – 7. b =_____

(79) The x^2 coefficient of $(3x^2 + 5x)(2x - 7)$ is _____

***(80)** The surface area of a sphere with radius 20 is_____

2018-2019 TMSCA Middle School Number Sense Key #3

(1) 192

(2) 858

(3) 20409

(4) 3600

(5) 48.6

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

(7) 2

(8) 225

(9) 720

***(10) 971 – 1073**

(11) 3300

(12) 9024

(13) 27

(14) 9

(15) 4896

(16) 37.5, $\frac{75}{2}$**,** $37\frac{1}{2}$

(17) 1800

(18) 936

(19) 3219

***(20) 86569 – 95681**

(21) 122.4

(22) 37774

(23) 23.47

(24) 15

(25) 1.6

(26) 126

(27) $12\frac{6}{7}$

(28) 216

(29) 49

***(30) 831 – 918**

(31) 15625

(32) 5760

(33) 38

(34) $24\frac{24}{25}$

(35) 9

(36) 145

(37) 56 $\frac{15}{64}$

(38) 16

(39) 1161

***(40) 34166 – 37762**

(41) 720

(42) $\frac{15}{11}$

(43) 216

(44) 66

(45) 22

(46) 1023

(47) 51

(48) 7171

(49) 8

***(50) 162 – 178**

(51) 16

(52) $16\frac{9}{22}$

(53) 14

(54) $-4.5, -4\frac{1}{2}$**, or** $-\frac{9}{2}$

(55) 103

(56) 27

(57) 9

(58) 14

(59) 1

***(60) 371 – 409**

(61) 35

(62) 24025

(63) 3825

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

(65) 240

(66) 4410

(67) 27

(68) 63

(69) $-\frac{1}{6}$

***(70) 3192 – 3528**

(71) 24

(72) 2

(73) $\frac{5}{18}$

(74) 60

(75) 2

(76) 96

(77) 243

(78) 21

(79) – 11

***(80) 4776 – 5277**