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

Name:_____ School:_____

SS/ID Number:_____ City:_____

Grade: 9 10 11 12 Classification: 1A 2A 3A 4A 5A 6A

TMSCA HIGH SCHOOL
NUMBER SENSE
TEST #8 ©
JANUARY 25, 2020

GENERAL DIRECTIONS

1. Write only the requested information on this cover sheet. 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.

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA TMSCA

2019-2020 TMSCA High School Number Sense Test 8

(1) $1223 - 484 + 74 =$ _____

(2) $2377 + 3372 + 696 =$ _____

(3) $41\frac{2}{3}\% =$ _____ (fraction)

(4) $\frac{3}{8} + \frac{3}{4} =$ _____ (mixed number)

(5) $6464 \times 75 =$ _____

(6) $14 \times 23 + 23 \times 36 =$ _____

(7) $1234 \times 9 + 5 =$ _____

(8) $5432 \times 11 =$ _____

(9) $7 \times 31.3 =$ _____ (decimal)

***(10)** $1777 + 1666 + 1555 + 1444 =$ _____

(11) $33^2 =$ _____

(12) $4\frac{4}{5} \times 10\frac{3}{4} =$ _____ (mixed number)

(13) 75 is what percent of 90? _____ %

(14) $469468 \div 9$ has a remainder of _____

(15) The LCM of 39 and 65 is _____

(16) 81 inches + 6 feet + 3 yards = _____ yards

(17) $\frac{33}{40} =$ _____ % (decimal)

(18) $366\frac{2}{3} \times 6\% =$ _____

(19) $55 \times 85 =$ _____

***(20)** $123 \times 70 \div 12 =$ _____

(21) The cube root of (-2744) is _____

(22) $0.357357357... =$ _____ (fraction)

(23) If 7 bots cost \$2.45, then 12 bots cost \$_____

(24) $76 \times 84 =$ _____

(25) $887_9 =$ _____$_{10}$

(26) $(37 + 21 \times 15) \div 6$ has a remainder of _____

(27) $23^2 + 69^2 =$ _____

(28) $545 \times 101 =$ _____

(29) $(7)(15)(k) = 50505.$ $k =$ _____

***(30)** $(24 \times 18 \times 32 \div 192)^2 =$ _____

(31) The largest root of $(8x - 3)^2 = \frac{1}{25}$ is _____

(32) $(12x + 13)^2 = ax^2 + bx + c.$ $a + b + c =$ _____

(33) Given: $7, 5, 12, 17, 29, m, 75, n, ...$ $n =$ _____

(34) $\frac{3}{7} = \frac{12}{x}.$ $\frac{1}{x} =$ _____

(35) The simple interest on \$900.00 at a rate of 4% for 6 years is \$_____

(36) 7.5 is _____ % less than 9?

(37) $111 \times 109 =$ _____

(38) $16^3 =$ _____

(39) $997 \times 993 =$ _____

***(40)** $\sqrt{46350866} =$ _____

(41) If $3^{(x+2)} = 7.5$, then $3^x =$ _____

(42) $(22)^3 - (21)^3 =$ _____

(43) $(105)^3 =$ _____

(44) $24_7 + 36_7 - 65_7 =$ is _____ 7

(45)The sides of a right triangle are integers. If the hypotenuse = 41, then the short leg =_____

(46) $1 + 3 + 6 + 10 + 15 + 21 + 28 =$ _____

(47) $83^2 + 22^2 =$ _____

(48) $7 + 11 + 15 + 19 + ... + 51 =$ _____

(49) $18 + 15 + \frac{25}{2} + \frac{125}{12} + ... =$ _____

***(50)** $12 \times 24 \times 36 \times 48 =$ _____

(51) ${}_7C_3 =$ _____

(52) $110101011_2 =$ _____ 8

(53) If $151_b = 105$, **then** $44_b =$ _____

(54) If $\log_8(512) = x$, **then** $x^5 =$ _____

(55) $\left(643_9\right) \div \left(7_9\right) =$ _____ 9

(56) $A = \{-1, 6, 25, 62, 123, k, ...\}$ $2k + 72 =$ _____

(57) The roots of $x^3 + 2x^2 - 5x - 6 = 0$ **are d, e, and f.** $(d + e)(e + f)(f + d) =$ _____

(58) $59^2 =$ _____

(59) $7\frac{3}{5} \times 7\frac{2}{5} =$ _____ **(mixed number)**

***(60)** $\sqrt[3]{1812368} =$ _____

(61) The sum of the coefficients of $(2x - 4w)^4$ **is** _____

(62) $90°C =$ _____ °F

(63) $\begin{vmatrix} k & 6 \\ k & k \end{vmatrix} = -9.$ $k =$ _____

(64) The shortest distance from the point (2, 2) to the line $8x + 15y = 12$ **is** _____

(65) The sum of the reciprocals of the first nine triangular numbers is _____

(66) $6AB9_{16} - 4777_{16} =$ _____ 16

(67) The sum of all negative integers x such that $2x + 12 \geq 3$ _____

(68) $0.1252525...$ **base 6 =_____base 6 (fraction)**

(69) $13 \times \frac{15}{17} =$ _____ **(mixed number)**

***(70)** $1200 \div 66\frac{2}{3}\% \div 3.5 =$ _____

(71) The first 4 digits of the decimal for $\frac{14}{20}$ **base 7 is 0._____ base 7**

(72) $\cot^2\left(\frac{11\pi}{6}\right) =$ _____

(73) The sum of the reciprocals of the positive divisors of 18 is _____

(74) $f'(x) = 3$ **and** $f(2) = 10.$ $f(5) =$ _____

(75) $223 \times 224 =$ _____

(76) The sum of the squares of the roots of $6x^2 + 13x - 5 = 0$ **is** _____

(77) $\lim_{x \to \infty}\left(\frac{\sin(x)}{x}\right) =$ _____

(78) $\int_1^4 (3x - 2)\,dx =$ _____

(79) $27 \times 37 =$ _____

***(80)** $(2e)^3 \times (2\pi)^3 =$ _____

2019-2020 TMSCA HSNS Test 8 Key

(1) 813

(2) 6445

(3) $\frac{5}{12}$

(4) $1\frac{1}{8}$

(5) 484800

(6) 1150

(7) 11111

(8) 59752

(9) 219.1

*(10) $6120-6764$

(11) 1089

(12) $51\frac{3}{5}$

(13) $83\frac{1}{3}$ or $\frac{250}{3}$

(14) 1

(15) 195

(16) $7.25, 7\frac{1}{4}, \frac{29}{4}$

(17) 82.5

(18) 22

(19) 4675

*(20) $682-753$

(21) -14

(22) $\frac{119}{333}$

(23) 4.20

(24) 6384

(25) 727

(26) 4

(27) 5290

(28) 55045

(29) 481

*(30) $4925-5443$

(31) $\frac{2}{5}$ or .4

(32) 625

(33) 121

(34) $\frac{1}{28}$

(35) 216.00

(36) $16\frac{2}{3}$ or $\frac{50}{3}$

(37) 12099

(38) 4096

(39) 990021

*(40) $6468-7148$

(41) $\frac{5}{6}$

(42) 1387

(43) 1157625

(44) -2

(45) 9

(46) 84

(47) 7373

(48) 348

(49) 108

*(50) $472781-522547$

(51) 35

(52) 653

(53) 36

(54) 243

(55) 83

(56) 500

(57) 4

(58) 3481

(59) $56\frac{6}{25}$

*(60) $116-128$

(61) 16

(62) 194

(63) 3

(64) 2

(65) $\frac{9}{5}, 1\frac{4}{5}, 1.8$

(66) 2342

(67) -10

(68) $\frac{42}{253}$

(69) $11\frac{8}{17}$

*(70) $489-540$

(71) 5333

(72) 3

(73) $\frac{13}{6}$ or $2\frac{1}{6}$

(74) 19

(75) 49952

(76) $\frac{229}{36}$ or $6\frac{13}{36}$

(77) 0

(78) $\frac{33}{2}, 16\frac{1}{2}, 16.5$

(79) 999

*(80) $37865-41850$