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 #9 ©
FEBRUARY 1, 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.

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2019-2020 TMSCA High School Number Sense Test 9

(1) $3728 + 3372 =$ _____

(2) $7891 - 1978 =$ _____

(3) $368 \times 0.11 =$ _____

(4) $\frac{47}{500} =$ _____ %(decimal)

(5) $53 \times 15 + 15 \times 27 =$ _____

(6) $\frac{7}{8} =$ _____ %(mixed number)

(7) $64 \times 125 =$ _____

(8) MCXLVII = _____ (Arabic numeral)

(9) $7 \div 3\frac{2}{3} =$ _____ (mixed number)

***(10)** $844 + 960 - 525 + 776 =$ _____

(11) $14^3 =$ _____

(12) $3\frac{2}{5} - 1\frac{3}{4} =$ _____ (mixed number)

(13) 25% of 88 less 30 = _____

(14) $48^2 =$ _____

(15) The arithmetic mean of
29, 36, 37 and 26 is _____

(16) The LCM of 35, 14 and 40 is _____

(17) $455\frac{5}{9} \times 18\% =$ _____

(18) 20 is what percent of 16?_____%

(19) $85\% =$ _____ (fraction)

***(20)** $595 \times 505 + 600 =$ _____

(21) 125 = _____ base 11

(22) $1988 \times 7 + 84 =$ _____

(23) If 9 pens cost \$5.13, then 20 pens cost \$_____

(24) $1.363636... =$ _____ (mixed number)

(25) $22^2 + 18^2 =$ _____

(26) $4\frac{6}{7} \times 7\frac{3}{4} =$ _____ (mixed number)

(27) $(21)(78)(k) = 60606.$ $k =$ _____

(28) 0.2333… _____ (fraction)

(29) 524 base 8 = _____ base 10

***(30)** $\sqrt{872258} =$ _____

(31) $(78 \times 14 - 35) \div 8$ has a remainder of _____

(32) The smallest root of $(3x + 1)^2 = \frac{4}{9}$ is _____

(33) If $2x - y = 3$ and $x + y = 12$, then $y =$ _____

(34) $(12x - 5y)^2 = ax + bx + c.$ $a + b + c =$ _____

(35) Given: 2, 7, 9, 16, 25, m, n, 107,... n = _____

(36) The simple interest on \$400
at a rate of 9% for 3 years is \$_____

(37) $97 \times 88 =$ _____

(38) $2\frac{2}{3}$ is what percent more than $1\frac{2}{3}$? _____%

(39) $76 \times 84 =$ _____

***(40)** $\sqrt{331} \times \sqrt{521} =$ _____

(41) $(102)^3 =$ _____

(42) $334_7 \div 4_7 =$ _____

(43)How many lines exist given 6 coplanar points such that no 3 points are collinear?_____

(44)The sum of the roots of $(3x-5)^2=0$ is _____

(45) $(12)^3-(11)^3=$ _____

(46) 3 + 6 + 10 + 15 + … + 55 = _____

(47) $561_8+452_8+113_8=$ _____

(48) $3+4+7+11+...+76+123=$ _____

(49) $2345678\div 11$ has a remainder of _____

***(50) $123\times 321\div 59=$ _____**

(51) 0.75 mile = _____ yards

(52) 678 base 9 = _____ base 3

(53) If $\frac{5!}{3!}=\frac{(x+1)!}{x!}$, then $x=$ _____

(54) If $135_b=75$, then $44_b=$ then _____

(55) $555\times\frac{6}{37}=$ _____

(56) $AB_{16}=$ _____ base 10

(57) $252\times 253=$ _____

(58) $330°=k\pi$. $k=$ _____ (mixed number)

(59) $111\times 109=$ _____

***(60) $53\times 18+46\times 19=$ _____**

(61) $15\times\frac{16}{19}=$ is _____ (mixed number)

(62) $\cos\left(\frac{\pi}{4}\right)\times\sin\left(\frac{3\pi}{4}\right)\times\tan^2\left(\frac{\pi}{6}\right)=$ _____

(63) The shortest distance between (4, 5) and $3x+4y=7$ is _____

(64) The probability of rolling two dice and getting a sum of 4 or 9 is _____

(65) The focus of the parabola $12y=(x-3)^2+48$ is (h, k). $h+k=$ _____

(66) The sum of all negative integers x such that $3x+2\geq -15$ is _____

(67) 0.363636… base 9 = _____ base 9 (fraction)

(68) The 15th term of the sequence $11+17+23+29+...$ is _____

(69) $f(x)=x^2-6x+9$. $f\left(f(8)\right)=$ _____

***(70) 2 miles = _____ inches**

(71) The sum of the reciprocals of the positive divisors of 21 is_____

(72) $\int_{-2}^{4} x^3dx=$ _____

(73) The sum of the reciprocals of the first ten triangular numbers is _____

(74) The sum of the squares of the roots of $4x^2+5x-6=0$ is _____

(75) $108\times 95=$ _____

(76) $f(x)=3x^3+3x$. $f'(1)=$ is _____

(77) Round $4\sqrt{7}$ to the nearest whole number _____

(78) $(-6,-6)$ are Cartesian coordinates for the polar coordinates (x, y) where $y=k\pi$ and $0<k<2$. $k=$ _____

(79) The first four digits of the decimal for $\frac{21}{34}$ base 8 is 0._____ base 8

***(80) $\sqrt[3]{2222816}=$ _____**

2019-2020 TMSCA HSNS Test 9 Key

(1) 7100

(2) 5913

(3) 40.48

(4) 9.4

(5) 1200

(6) $87\frac{1}{2}$

(7) 8000

(8) 1147

(9) $1\frac{10}{11}$

***(10)** $1953-2157$

(11) 2744

(12) $1\frac{13}{20}$

(13) -8

(14) 2304

(15) 32

(16) 280

(17) 82

(18) 125

(19) $\frac{17}{20}$

***(20)** $286022-316128$

(21) 104

(22) 14000

(23) 11.40

(24) $1\frac{4}{11}$

(25) 808

(26) $37\frac{9}{14}$

(27) 37

(28) $\frac{7}{30}$

(29) 340

***(30)** $888-980$

(31) 1

(32) $-\frac{5}{9}$

(33) 7

(34) 49

(35) 66

(36) 108.00

(37) 8536

(38) 60

(39) 6384

***(40)** $395-436$

(41) 1061208

(42) 61

(43) 15

(44) $\frac{10}{3}$ or $3\frac{1}{3}$

(45) 397

(46) 219

(47) 1346

(48) 318

(49) 5

***(50)** $636-702$

(51) 1320

(52) 202122

(53) 19

(54) 32

(55) 90

(56) 171

(57) 63756

(58) $1\frac{5}{6}$

(59) 12099

***(60)** $1737-1919$

(61) $12\frac{12}{19}$

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

(63) 5

(64) $\frac{7}{36}$

(65) 10

(66) -15

(67) $\frac{36}{88}$

(68) 95

(69) 484

***(70)** $120384-133056$

(71) $\frac{32}{21}$ or $1\frac{11}{21}$

(72) 60

(73) $1\frac{9}{11}$ or $\frac{20}{11}$

(74) $\frac{73}{16}, 4\frac{9}{16}, 4.5625$

(75) 10260

(76) 12

(77) 11

(78) $\frac{5}{4}, 1\frac{1}{4}, 1.25$

(79) 4666

***(80)** $124-137$