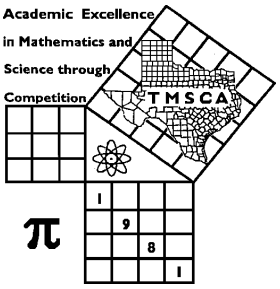
1st Score: _____ Grader: _____	2nd Score: _____ Grader: _____	3rd Score: _____ Grader: _____	**Final Score**

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#5©

DECEMBER 4, 2021

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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2021-2022 TMSCA Middle School Number Sense Test 5

(1) $2021 + 2022 =$ _____

(2) $2021 - 2022 =$ _____

(3) $526 \times 11 =$ _____

(4) $\frac{7}{10} - \frac{2}{5} =$ _____ (fraction)

(5) $175\% =$ _____ (mixed number)

(6) $5266 \div 9$ has a remainder of _____

(7) $24^2 =$ _____

(8) $21 + 25 + 29 =$ _____

(9) $7 \times 12 + 13 \times 12 =$ _____

***(10)** $213 + 466 + 678 =$ _____

(11) $53 \times 57 =$ _____

(12) $75 \times 45 =$ _____

(13) The GCF of 39 and 52 is _____

(14) $4\frac{2}{3} + 3\frac{2}{7} =$ _____ (mixed number)

(15) XXI + IX = _____ (Arabic numeral)

(16) $8\frac{2}{3} \times 9\frac{3}{8} =$ _____ (mixed number)

(17) $2^3 \times 3^3 =$ _____

(18) $0.275 =$ _____ (fraction)

(19) $\frac{7}{9} \div \frac{14}{27} =$ _____ (mixed number)

***(20)** $4622 \div 15 =$ _____

(21) $13 \times 212 =$ _____

(22) If $A = \{1, 2, 3, 5, 8\}$ and $B = \{2, 3, 5, 7, 13\}$, then $A \cap B$ has how many elements? _____

(23) $58 \times 25 =$ _____

(24) $37^2 + 67^2 =$ _____

(25) $\sqrt[3]{3375} =$ _____

(26) If $5^x = 12.5$, then $5^{x-1} =$ _____

(27) $98 \times 99 =$ _____

(28) $101 \times 102 =$ _____

(29) $5\frac{7}{9} \times 5\frac{2}{9} =$ _____ (mixed number)

***(30)** $\sqrt{348871} =$ _____

(31) If Tim has $8.75 in quarters, then he has _____ quarters

(32) $39^2 - 41^2 =$ _____

(33) If $3^{2x} = 81$, then $x =$ _____

(34) 113 base 10 = _____ base 6

(35) If $f(x) = x^2 - 4x + 4$, then $f(22) =$ _____

(36) A square has _____ diagonals

(37) 15% of 30 is 45% of _____

(38) $|4 - 12| + |11 - 3| =$ _____

(39) $\{2, 3, 5, 7, 11, 13, 17, m, n, 29, ...\}$ $m + n =$ _____

***(40)** $21 \times 50 \times 39 =$ _____

(41) The number of positive integral divisors of 24 is _____

(42) $\frac{7}{8} - \frac{8}{7} =$ _____ (fraction)

(43) The measure of an exterior angle of a regular pentagon is_____°

(44) How many integers between 15 and 62 are divisible by 5? _____

(45) 60% of $133\frac{1}{3}$ = _____

(46) The volume of a cylinder with diameter = 12 and height = 10 is _____ π

(47) $\frac{1}{7}$ of a gallon = _____ cubic inches

(48) $996 \times 994 =$ _____

(49) $429 \times 14 =$ _____

***(50)** $\sqrt[3]{133} \times \sqrt[3]{202} =$ _____

(51) The multiplicative inverse of 1.6 is _____

(52) $131°\,F =$ _____ $°\,C$

(53) $26862 \div 111 =$ _____

(54) $1006 \times 1007 =$ _____

(55) $(234_6)(4_6) =$ _____ $_6$

(56) If $(3x-5)(4x+7) = ax^2 + bx + c$, then b = _____

(57) The sum of the positive factors of 18 is _____

(58) $\frac{9!}{6!4!2!} =$ _____

(59) $0.0363636... =$ _____ (fraction)

***(60)** $11^3 \times 393 \div 121 =$ _____

(61) The 2nd triangular number plus the second pentagonal number = _____

(62) $11 \times \frac{13}{18} =$ _____ (mixed number)

(63) 75% of 44 minus 25% of 80 is _____

(64) $77_8 - 23_8 - 12_8 =$ _____ $_8$

(65) $17 \times 19 + 1 =$ _____

(66) If $f(x) = \frac{4x+8}{5} + 14$, then $f^{-1}(-6) =$ _____

(67) Round $\sqrt{7}$ to the nearest tenth. _____

(68) The simple interest on \$600 at a rate of 8% for 8 months is \$_____

(69) The area of an isosceles trapezoid with a height of 10 and base lengths of 12 and 16 is _____

***(70)** $32^2 + 76 =$ _____

(71) If $x = 12$ and $y = 8$, then $x^2 - 2xy + y^2 =$ _____

(72) $7 + 14 + 21 + 28 + ... + 70 =$ _____

(73)) The distance between the points $(2, 8)$ and $(-5, 6)$ is k. $k^2 =$ _____

(74) If the probability that Alabama wins is 0.96, then the odds that Alabama loses are _____ (fraction)

(75) $6^8 \div 7$ has a remainder of _____

(76) The sum of the positive integers x such that $5x + 4 < 21$ is _____

(77) The first four digits of the decimal for $\frac{7}{15}$ is 0._____

(78) The probability of randomly selecting a red queen from a standard deck of cards is ____

(79) The sum of the reciprocals of the first 15 triangular numbers is _____

***(80)** Dak's base salary for 2023 is \$31,000,000.00, which means for every hour of 2023, he receives _____ dollars

2021-2022 TMSCA Middle School Number Sense Test 5 key

(1) 4043

(2) -1

(3) 5786

(4) $\frac{3}{10}$

(5) $1\frac{3}{4}$

(6) 1

(7) 576

(8) 75

(9) 240

***(10)** $1290-1424$

(11) 3021

(12) 3375

(13) 13

(14) $7\frac{20}{21}$

(15) 30

(16) $81\frac{1}{4}$

(17) 216

(18) $\frac{11}{40}$

(19) $1\frac{1}{2}$

***(20)** $293-323$

(21) 2756

(22) 3

(23) 1450

(24) 5858

(25) 15

(26) $2.5, 2\frac{1}{2}, \frac{5}{2}$

(27) 9702

(28) 10302

(29) $30\frac{14}{81}$

***(30)** $562-620$

(31) 35

(32) -160

(33) 2

(34) 305

(35) 400

(36) 2

(37) 10

(38) 16

(39) 42

***(40)** $38903-42997$

(41) 8

(42) $-\frac{15}{56}$

(43) 72

(44) 9

(45) 80

(46) 360

(47) 33

(48) 990024

(49) 6006

***(50)** $29-31$

(51) $\frac{5}{8}$

(52) 55

(53) 242

(54) 1013042

(55) 1424

(56) 1

(57) 39

(58) $10.5, 10\frac{1}{2}, \frac{21}{2}$

(59) $\frac{2}{55}$

***(60)** $4107-4539$

(61) 8

(62) $7\frac{17}{18}$

(63) 13

(64) 42

(65) 324

(66) -27

(67) 2.6

(68) 32.00

(69) 140

***(70)** $1045-1155$

(71) 16

(72) 385

(73) 53

(74) $\frac{1}{24}$

(75) 1

(76) 6

(77) 4666

(78) $\frac{1}{26}$

(79) $1\frac{7}{8}, 1.875, \frac{15}{8}$

***(80)** $3362-3715$