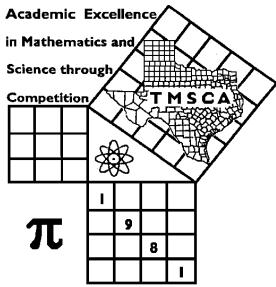| 1st Score: _____	2nd Score: _____	3rd Score: _____	
Grader: _____	Grader: _____	Grader: _____	**Final Score**

PLACE LABEL BELOW

Name: _____ School: _____

SS/ID Number: _____ City: _____

Grade: 4   5   6   7   8   Classification: 1A   2A   3A   4A   5A   6A

T M S C A   M I D D L E   S C H O O L

N U M B E R   S E N S E

T E S T   # 1 0 ©

F E B R U A R Y   8 ,   2 0 2 0

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.

© *TMSCA* **2019**

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

(1) $468 + 135 - 379 =$ _____

(2) $2077 - 1253 - 5 =$ _____

(3) $15 \times 18 + 29 =$ _____

(4) $65\% =$ _____ (fraction)

(5) $110 \div 9 =$ _____ (mixed number)

(6) $15.44 - 3.2 =$ _____ (decimal)

(7) $789 \times 5 =$ _____

(8) 12 is what percent of 72? _____%

(9) $1\dfrac{3}{5} + 3\dfrac{7}{10} =$ _____ (mixed number)

*(10) $888 + 317 + 5666 =$ _____

(11) $34 \times 25 =$ _____

(12) Which is smaller, $\dfrac{4}{7}$ or $\dfrac{5}{9}$? _____

(13) $45 \times 14 + 16 \times 45 =$ _____

(14) 60% of a ton = _____ pounds

(15) $65 \times 75 =$ _____

(16) $124 \times 13 =$ _____

(17) The largest prime divisor of 78 is _____

(18) The LCM of 32, 12 and 48 is _____

(19) $87 \times 93 =$ _____

*(20) $288 \times 318 + 2002 =$ _____

(21) $12\dfrac{4}{5} \times 10\dfrac{1}{6} =$ _____ (mixed number)

(22) 16% of 56 is 64% of _____

(23) 234 base 6 = _____ base 10

(24) The simple interest on $1500 at 8% for 18 months is $_____

(25) $0.6999\ldots =$ _____ (fraction)

(26) Two numbers have a sum of 18, a product of 65 and a difference of _____

(27) If $f(x) = 3x^2 + 9x$, then $f(5) =$ _____

(28) If $12 \times 75 + 100 = k^3$, then $k =$ _____

(29) If P and Q are the roots of $f(x) = 4x^2 - 4x - 65 = 0$, then $8PQ =$ _____

*(30) $\sqrt[3]{71566} =$ _____

(31) If $f(x) = (5x + 4)^2 =$ $ax^2 + bx + c$, then $a + b + c =$ _____

(32) $12\dfrac{3}{4}\% =$ _____ (fraction)

(33) $27^2 - 33^2 =$ _____

(34) $23^2 + 73^2 =$ _____

(35) $8 + 88 + 888 + 8888 =$ _____

(36) $15 \times 225 =$ _____

(37) $A = \{2, 3, 5, 7, 11, 13, m, n, 23\}$. $m + n =$ _____

(38) $21^2 + 63^2 =$ _____

(39) The 22$^{\text{th}}$ triangular number is _____

*(40) $77844 \div 144 =$ _____

(41) $S = \{a, b, c, d, e, f\}$ has _____ improper subsets

(42) $247 \times 111 =$ _____

(43) The angle complementary
to $34°$ measures _____°

(44) The sum of the positive
integral divisors of 42 is _____

(45) $(73 \times 17 + 14) \div 5$ has a remainder of _____

(46) $\dfrac{4}{5} + \dfrac{4}{25} + \dfrac{4}{125} + \dfrac{4}{625} + ... = $ _____

(47) $\left(636_8\right) \div \left(6_8\right) = $ _____ $_8$

(48) An octagon has _____ diagonals.

(49) The largest value of k such
that 65423k is divisible by 4 is _____

*(50) $20^2 + 30^2 + 40^2 = $ _____

(51) $16 \times \dfrac{15}{19} = $ _____ (mixed number)

(52) $47 \times 202 = $ _____

(53) The harmonic mean of 4 and 11 is _____

(54) $\dfrac{4}{11}$ of a gallon = _____ cubic inches

(55) $(1008)^2 = $ _____

(56) The largest integral
solution of $4x - 9 \le 23$ is _____

(57) $\left(5\sqrt{6} \times 2\sqrt{6}\right)^2 = $ _____

(58) The geometric mean of 2, 9 and 12 is _____

(59) $4\dfrac{1}{6} - 5\dfrac{1}{3} = $ _____

*(60) $\sqrt{882} \times \sqrt{1316} = $ _____

(61) $1234 \times 8 + 4 = $ _____

(62) If $4^x = 9$, then $4^{(x+2)} = $ _____

(63) If 8 painters can paint a house in 6 hours,
how many hours would it take
12 painters to paint a house? _____

(64) The sum of the solutions
of $|2x - 6| = 17$ is _____

(65) Find the probability of getting a
sum of 6, 7 or 8 when rolling two dice. _____

(66) If $h(x) = 2x^2 + 3$, then $\left(h(h(2))\right) = $ is _____

(67) $\dfrac{8!}{5!4!} = $ _____

(68) $2^3 \times 3^2 \times 5^3 = $ _____

(69) $143 \times 77 = $ _____

*(70) $2^6 \times \pi^6 = $ _____

(71) How many 3-digit numbers end in 7? _____

(72) $\dfrac{6}{7} - \dfrac{17}{22} = $ _____

(73) How many positive integers
are relatively prime to 65? _____

(74) $3 + 4 + 7 + 11 + 18 + ... + 123 + 199 = $ _____

(75) 0.44 base 6 = _____ base 10 (fraction)

(76) $x^2 < 225$ has _____ integer solutions

(77) How many distinct 7-letter
arrangements can be made from
the letters of the set {c,a,l,t,e,c,h}? _____

(78) $(7)(13)(37)(k) = 20202.$ $k = $ _____

(79) If x and y are positive integers and if
$x^2 + y^2 = 130,$ $x > y,$ then $x - y = $ _____

*(80) $e^6 \times 5^4 = $ _____

2019-2020 TMSCA MSNS Test 10 Key

(1) 224

(2) 819

(3) 299

(4) $\dfrac{13}{20}$

(5) $12\dfrac{2}{9}$

(6) 12.24

(7) 3945

(8) $16\dfrac{2}{3}$ or $\dfrac{50}{3}$

(9) $5\dfrac{3}{10}$

*(10) $6528-7214$

(11) 850

(12) $\dfrac{5}{9}$

(13) 1350

(14) 1200

(15) 4875

(16) 1612

(17) 13

(18) 96

(19) 8091

*(20) $88907-98265$

(21) $130\dfrac{2}{15}$

(22) 14

(23) 94

(24) 180.00

(25) $\dfrac{7}{10}$

(26) 8

(27) 120

(28) 10

(29) −130

*(30) $40-43$

(31) 81

(32) $\dfrac{51}{400}$

(33) −360

(34) 5858

(35) 9872

(36) 3375

(37) 36

(38) 4410

(39) 253

*(40) $514-567$

(41) 1

(42) 27417

(43) 56

(44) 96

(45) 0

(46) 1

(47) 105

(48) 20

(49) 6

*(50) $2755-3045$

(51) $12\dfrac{12}{19}$

(52) 9494

(53) $\dfrac{88}{15}$ or $5\dfrac{13}{15}$

(54) 84

(55) 1016064

(56) 8

(57) 3600

(58) 6

(59) $-1\dfrac{1}{6}$ or $-\dfrac{7}{6}$

*(60) $1024-1131$

(61) 9876

(62) 144

(63) 4

(64) 6

(65) $\dfrac{4}{9}$

(66) 245

(67) 14

(68) 9000

(69) 11011

*(70) $58453-64605$

(71) 90

(72) $\dfrac{13}{154}$

(73) 48

(74) 517

(75) $\dfrac{7}{9}$

(76) 29

(77) 2520

(78) 6

(79) 2

*(80) $239536-264750$