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

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F E B R U A R Y   5 ,   2 0 2 2

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 <u>non-black</u> 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 <u>FIVE</u> points. <u>FOUR</u> points will be deducted for all problems answered incorrectly or skipped before the last problem attempted.

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(1) $753 - 531 =$ _____

(2) $592 + 407 =$ _____

(3) $20 \times 15 =$ _____

(4) $\dfrac{1}{8} + \dfrac{3}{4} =$ _____ (fraction)

(5) $4.85 - 2.66 =$ _____ (decimal)

(6) $73 \times 101 =$ _____

(7) $7(8) + 13(8) + 5(8) =$ _____

(8) $125 \times 24 =$ _____

(9) $\dfrac{7}{20} =$ _____ (decimal)

*(10) $364 + 644 + 88 =$ _____

(11) $107 \times 109 =$ _____

(12) $44 \times 36 =$ _____

(13) The mean of 28, 25, 37 and 38 is _____

(14) $3\dfrac{3}{5} \times 10\dfrac{2}{3} =$ _____ (mixed number)

(15) 180 inches = _____ yards

(16) 35 is what percent of 50? _____%

(17) MDCLXV = _____ (Arabic numeral)

(18) $4\dfrac{5}{7} + 3\dfrac{5}{6} =$ _____ (mixed number)

(19) The sum of the prime
numbers between 40 and 50 is _____

*(20) $45133 \div 215 =$ _____

(21) $21 \times 4\dfrac{1}{3} =$ _____

(22) $38 \times 25 =$ _____

(23) $94 \times 104 =$ _____

(24) The simple interest on \$800
at 5% for 36 months is \$_____

(25) $24^2 + 72^2 =$ _____

(26) $351 \times 14 =$ _____

(27) If $5x + 12 = 22$, then $3x - 1 =$ _____

(28) The GCD $(20, 25)$ + LCM $(20, 25) =$ _____

(29) 4 gallons = _____ pints

*(30) $\sqrt{775196} =$ _____

(31) $(46)^2 =$ _____

(32) $(21x - 6)^2 = ax^2 + bx + c.$ $a + b + c =$ _____

(33) If the y-intercept of the line
$7x + 2y = 6$ is $(0, b)$, then b = _____

34) My car travels 24 miles on one gallon of gas.

How far will it travel on 12 gallons? _____mi

(35) $0.484848\ldots =$ _____ (fraction)

(36) If $7^x = \dfrac{1}{343}$, then x = _____

(37) 73 in base 10 = _____ base 8

(38) $\dfrac{7}{9} + \dfrac{9}{7} =$ _____ (mixed number)

(39) The negative reciprocal of 4.4 is _____

*(40) $\sqrt[3]{29533} =$ _____

(41) $T = \{1, 3, 6, 10, 15, 21, a, b, 45\}.$ $b =$ _____

(42) $45°\,C =$ _____ $°F$

(43) If the area of a rectangle with length = 18 is 126, then the perimeter = _____

(44) $333 \times \dfrac{9}{37} =$ _____

(45) $0.075 =$ _____ (fraction)

(46) $828 \times 111 =$ _____

(47) $143 \times 84 =$ _____

(48) The volume of cube is 729 cm³. The total surface area of the cube is _____ cm²

(49) How many integers between 30 and 80 are divisible by 6? _____

*(50) $\sqrt{444} \times \sqrt{555} =$ _____

(51) $(201)^3 =$ _____

(52) $1006 \times 1009 =$ _____

(53) The area of an equilateral triangle with a side = 16 cm is _____ $\sqrt{3}$ cm²

(54) If $4^{(x+y)} = 64$, then $(x + y)^5 =$ _____

(55) $\dfrac{7!}{4!} \times (6)^{-1} =$ _____

(56) $(409)^2 =$ _____

(57) $(442_6) \div (5_6) =$ _____ ₆

(58) $\left(3\sqrt{2} \times 5\sqrt{2}\right)^2 =$ _____

(59) $0.363636... + 0.222... =$ _____

*(60) $\pi^4 \times e^4 =$ _____

(61) The harmonic mean of 10 and 15 is _____

(62) $9^3 - 29 =$ _____

(63) The distance between the points is $(4, -9)$ and $(6, 3)$ is k. $k^2 =$ _____

(64) The hypotenuse of a right triangle with integral sides is 10. The area is _____

(65) The smallest palindrome greater than 390 is _____

(66) $(34)^2 + (35)^2 =$ _____

(67) The set $\{t, e, x, a, n\}$ has _____ subsets

(68) 12% of $283\dfrac{1}{3} =$ _____

(69) $555 \times \dfrac{4}{27} =$ _____

*(70) $12 \times 16 \times 20 =$ _____

(71) The arithmetic sequence $3, 10, 17, 24, ..., 108$ has _____ terms

(72) If $h(x) = x^2 - 1$, then $h\big(h(4)\big) =$ _____

(73) $\left(2345_6 \times 11_6\right) =$ _____ ₆

(74) 33 base 4 is _____ base 8

(75) The sum of the integral solutions of $|4x + 8| \le 20$ is _____

(76) The sum of the positive integral divisors of 27 is _____

(77) How many distinct 6-letter arrangements can be made from the letters of the word beetle? _____

(78) If m and n are natural numbers and $3\dfrac{1}{m} \times n\dfrac{2}{5} = 18$, then m + n = _____

(79) A string 2 yd, 2 ft, 2 in long is cut into 7 equal pieces. How long is each piece? _____ in

*(80) 3 miles = _____ in

(1) 222

(2) 999

(3) 300

(4) $\dfrac{7}{8}$

(5) 2.19

(6) 7373

(7) 200

(8) 3000

(9) .35

*(10) $1042 - 1150$

(11) 11663

(12) 1584

(13) 32

(14) $38\dfrac{2}{5}$

(15) 5

(16) 70

(17) 1665

(18) $8\dfrac{23}{42}$

(19) 131

*(20) $200 - 220$

(21) 91

(22) 950

(23) 9776

(24) 120.00

(25) 5760

(26) 4914

(27) 5

(28) 105

(29) 32

*(30) $837 - 924$

(31) 2116

(32) 225

(33) 3

(34) 288

(35) $\dfrac{16}{33}$

(36) −3

(37) 111

(38) $2\dfrac{4}{63}$

(39) $-\dfrac{5}{22}$

*(40) $30 - 32$

(41) 36

(42) 113

(43) 50

(44) 81

(45) $\dfrac{3}{40}$

(46) 91908

(47) 12012

(48) 486

(49) 8

*(50) $472 - 521$

(51) 8120601

(52) 1015054

(53) 64

(54) 243

(55) 35

(56) 167281

(57) 54

(58) 900

(59) $\dfrac{58}{99}$

*(60) $5053 - 5584$

(61) 12

(62) 700

(63) 148

(64) 24

(65) 393

(66) 2381

(67) 32

(68) 34

(69) $82\dfrac{2}{9}$ or $\dfrac{740}{9}$

*(70) $3648 - 4032$

(71) 16

(72) 224

(73) 30235

(74) 17

(75) −22

(76) 40

(77) 120

(78) 8

(79) 14

*(80) 180576-199584