

1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
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 # 12 ©

MARCH 6, 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.

[illegible]

2020-2021 TMSCA Middle School Test 12

(1) $713 + 607 =$ _____

(22) 2 cups + 2 pints = _____ ounces

(2) $741 - 841 =$ _____

(23) $324 \times 12 =$ _____

(3) $24 \times 25 =$ _____

(24) 25% of 24 is 75% of _____

(4) $14.4 + 5.6 =$ _____

(25) The cube root of -512 is _____

(5) $\frac{2}{5} =$ _____ (decimal)

(26) $107^2 =$ _____

(6) $379 \div 9$ has a remainder of _____

(27) If Sarah has \$7.75 in quarters, then she has _____ quarters

(7) $\frac{3}{4} + \frac{5}{16} =$ _____ (mixed number)

(28) If $A = \{0, 2, 4, 6, 8, \}$ and $B = \{3, 4, 5, 6, 7\}$, then $A \cap B$ has how many elements? _____

(8) $15^2 =$ _____

(29) 80 base 10 = _____ base 6

(9) $245\% =$ _____ (decimal)

*(30) $142 \times 78 \div 7 =$ _____

*(10) $1874 + 313 - 82 =$ _____

(31) If the area of a square is 441, then the perimeter is _____

(11) $37 \times 77 =$ _____

(32) If $4x - 12 = 36$, then $x^2 =$ _____

(12) $42 \div 0.14 =$ _____

(33) If 8 ads cost \$14.50, then 12 ads cost \$_____

(13) $94 \times 96 =$ _____

34) What is 8% tax on \$45.00? \$_____

(14) $12^2 + 4^2 =$ _____

(35) $43^2 =$ _____

(15) $5\frac{1}{4} \times 5\frac{3}{4} =$ _____ (mixed number)

(36) $\frac{6!}{2!} =$ _____

(16) Which is larger, $\frac{6}{11}$ or $\frac{8}{15}$? _____

(37) $\frac{3}{7}$ of a gallon = _____ in^3

(17) $85 \times 45 =$ _____

(38) $0.0818181\dots =$ _____ (fraction)

(18) $15 + 20 + 25 + 30 + 35 =$ _____

(39) If $5^{4x} = 125$, then $x =$ _____

(19) $57 \times 53 =$ _____

*(40) 44 yards = _____ inches

*(20) $452 \times 196 =$ _____

(41) $\sqrt[3]{2197} =$ _____

(21) 25% of 88 plus 8 is _____

(42) The largest prime divisor of 115 is _____

(43) $453627 \div 11$ has a remainder of _____

(44) $\frac{4}{5} \times \frac{3}{8} \times \frac{10}{21} =$ _____ (fraction)

(45) $452_7 - 154_7 =$ _____₇

(46) The measure of an exterior angle of a regular octagon is _____^o

(47) $286 \times 49 =$ _____

(48) $43 \times 56 =$ _____

(49) $S = \{2, 5, 10, 17, 26, 37, m, n, \dots\}$. $m + n =$ _____

*(50) $\sqrt[3]{222} \times \sqrt[3]{332} =$ _____

(51) If $f(x) = 2x^2 - 3$, then $f(f(3)) =$ _____

(52) How many positive integers less than or equal to 42 are relatively prime to 42? _____

(53) $10110111_2 =$ _____₈

(54) The multiplicative inverse of 4.5 is _____

(55) 105 mph = _____ ft/s

(56) The slope of a line containing the points $(-2, -5)$ and $(-7, 10)$ is _____

(57) $(28 + 34 \times 14) \div 6$ has a remainder of _____

(58) $996 \times 995 =$ _____

(59) $9^{-3} + 9^{-1} =$ _____

*(60) $11^5 \times 13 \div 11^2 =$ _____

(61) $\frac{2}{15} + \frac{2}{35} + \frac{2}{63} =$ _____ (fraction)

(62) The 7th hexagonal number is _____

(63) Two dice are rolled. The probability of getting a sum of 5 or 6 is _____

(64) If the roots of $3x^2 + 11x - 20 = 0$ are P and Q, then $PQ + (P + Q) =$ _____

(65) $11 \times \frac{13}{17} =$ _____ (mixed number)

(66) If $75^6 \div 15 = (3^x)(5^y)$, then $x + y =$ _____

(67) $22^2 - 28^2 + 34^2 - 40^2 =$ _____

(68) $\left(\frac{27}{64}\right)^{\frac{2}{3}} =$ _____ (fraction)

(69) $31^3 - 30^3 =$ _____

*(70) $e^5 \times \pi^5 =$ _____

(71) If $f(x) = \frac{7x+6}{4} + 7$, then $f^{-1}(-2) =$ _____

(72) $(435_9) \times (7_9) =$ _____₉

(73) The first 4 digits of the decimal for $\frac{79}{333}$ is 0. _____

(74) If $x^2 + y^2 = 185$, $x > y > 4$, and both x and y are integers then $x + y =$ _____

(75) The smallest angle formed by the hands of a clock at 9:20 is _____^o

(76) $1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 =$ _____

(77) $333 \times \frac{5}{27} =$ _____ (mixed number)

(78) The volume of a sphere with a radius of 9 cm is _____ $\pi \text{ cm}^3$

(79) $(13)(28)(111) =$ _____

*(80) The volume of a cone with diameter = 24 cm and height = 12 cm is _____ cm^3

2020-2021 TMSCA MSNS Test 12 Key

(1) 1320	(22) 48	(43) 9	(63) $\frac{1}{4}$
(2) -100	(23) 3888	(44) $\frac{1}{7}$	(64) $-\frac{31}{3}$ or $-10\frac{1}{3}$
(3) 600	(24) 8	(45) 265	(65) $8\frac{7}{17}$
(4) 20	(25) -8	(46) 45	(66) 16
(5) .4	(26) 11449	(47) 14014	(67) -744
(6) 1	(27) 31	(48) 2408	(68) $\frac{9}{16}$
(7) $1\frac{1}{16}$	(28) 2	(49) 115	(69) 2791
(8) 225	(29) 212	(50) 40-44	(70) 43147-47688
(9) 2.45	*(30) 1504-1661	(51) 447	(71) -6
*(10) 2000-2210	(31) 84	(52) 12	(72) 3368
(11) 2849	(32) 144	(53) 267	(73) 2372
(12) 300	(33) 21.75	(54) $\frac{2}{9}$	(74) 19
(13) 9024	(34) 3.60	(55) 154	(75) 160
(14) 160	(35) 1849	(56) -3	(76) 441
(15) $30\frac{3}{16}$	(36) 360	(57) 0	(77) $61\frac{2}{3}$
(16) $\frac{6}{11}$	(37) 99	(58) 991020	(78) 972
(17) 3825	(38) $\frac{9}{110}$	(59) $\frac{82}{729}$	(79) 40404
(18) 125	(39) $\frac{3}{4}$ or .75	*(60) 16438-18168	*(80) 1720-1900
(19) 3021	*(40) 1505-1663	(61) $\frac{2}{9}$	
*(20) 84163-93021	(41) 13	(62) 91	
(21) 30	(42) 23		