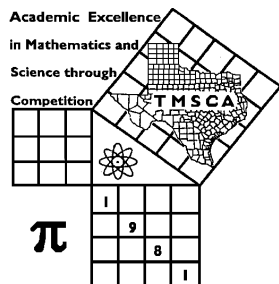


1st Score: _____	2nd Score: _____	3rd Score: _____	Final Score
Grader: _____	Grader: _____	Grader: _____	
PLACE LABEL BELOW			
Name: _____ School: _____			
SS/ID Number: _____ City: _____			
Grade: 5 6 7 8 Classification: 1A 2A 3A 4A 5A 6A			



**TMSCA MIDDLE SCHOOL
NUMBER SENSE
TEST # 2 ©
OCTOBER 31, 2015**

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.

2015-2016 TMSCA Middle School Number Sense Test #2

- (1) $186 \div 6 =$ _____
- (2) $50 \times 92 =$ _____
- (3) $\frac{13}{50} =$ _____ %
- (4) $2016 \times 8 =$ _____
- (5) $11 \times 48 =$ _____
- (6) $0.375 =$ _____ (fraction)
- (7) $97531 \div 9$ has a remainder of _____
- (8) $31 \times (5^2 - 1) \div 12 =$ _____
- (9) $\frac{14}{15} \times 45 =$ _____
- *(10) 45% of $1107 =$ _____
- (11) $64\% =$ _____ (fraction)
- (12) $81 \div 4.5 =$ _____
- (13) $68 \times 48 =$ _____
- (14) $5 \text{ feet} + 3 \text{ inches} =$ _____ inches
- (15) $14^2 =$ _____
- (16) $\frac{3}{4} + \frac{4}{5} =$ _____ (improper fraction)
- (17) $13 \times 71 =$ _____
- (18) $33 \times 24 - 9 \times 24 =$ _____
- (19) $413 =$ _____ (Roman Numeral)
- *(20) $9325 + 14 \times 899 =$ _____
- (21) $48 \times 3.5 =$ _____
- (22) $98 \times 94 =$ _____
- (23) $66 \times 0.333... =$ _____
- (24) The GCF of 18 and 42 is _____
- (25) The cube root of 125 is _____
- (26) $15 + 93 \div 5 - 68 \div 5 =$ _____
- (27) Find the number of prime numbers that are less than 25. _____
- (28) The multiplicative inverse of 1.4 is _____ (fraction)
- (29) $109 \times 104 =$ _____
- *(30) $583 \times 959 =$ _____
- (31) The supplement of a 153° angle is _____ $^\circ$
- (32) The sum of the distinct prime divisors of 44 is _____
- (33) $478 \text{ meters} =$ _____ hectometers
- (34) $11\frac{3}{8} \times 11\frac{5}{8} =$ _____ (mixed number)
- (35) If 9 pencils cost \$1.50, then 9 dozen pencils cost \$ _____
- (36) The number of positive integral divisors of 50 is _____
- (37) $48 \times 52 =$ _____
- (38) $16^2 + 32^2 =$ _____
- (39) If $4x + 9 = 23$, then $4x - 1 =$ _____
- *(40) $31^3 =$ _____
- (41) If $\frac{9}{x} = \frac{14}{8}$, then $x =$ _____
- (42) $9 \times \frac{3}{4} =$ _____ (mixed number)

- (43) Find the area of a square with diagonal of 12. _____
- (44) $\sqrt{1764} =$ _____
- (45) $2 + 4 + 6 + \dots + 26 =$ _____
- (46) If $f(x) = \frac{15}{x}$, then $f\left(\frac{1}{15}\right) =$ _____
- (47) A set with 128 subsets has how many elements?

- (48) A regular octagon has an exterior angle of
measure _____ degrees
- (49) $143_5 =$ _____₁₀
- *(50) $333 \times 479 =$ _____
- (51) $13 \times \frac{13}{15} =$ _____ (mixed number)
- (52) $17 \times \frac{19}{21} =$ _____ (mixed number)
- (53) In the geometric series $\dots, x, 9, y, \dots$, find xy . _____
- (54) $1 = \frac{7}{13} \times$ _____ (mixed number)
- (55) The area of a circle with a radius of 9 is $k\pi$,
 $k =$ _____
- (56) $23_5 + 4_5 =$ _____₅
- (57) $\sqrt[3]{32768} =$ _____
- (58) $(2^{11} + 6^3 + 9^3) \div 4$ has a remainder of _____
- (59) $403^2 =$ _____
- *(60) $22^2 + 25^2 + 28^2 =$ _____
- (61) $12 \div 0.08333\dots =$ _____
- (62) $720 \times 125 =$ _____
- (63) If $39^2 + 26^2 = k \times 13^2$, then $k =$ _____
- (64) What is the 8th pentagonal number? _____
- (65) $.4333\dots =$ _____ (fraction)
- (66) If the slope of the line $Ax + 5y = -3$
is 1.6, then $A =$ _____
- (67) If $\sqrt{98} = a\sqrt{b}$, then $b =$ _____
- (68) If the x-intercept of $5x + 4y = C$ is 8,
then find the y-intercept. _____
- (69) $34_6 \times 2_6 =$ _____₆
- *(70) Find the area of an equilateral triangle
with side length 40. _____
- (71) If P and Q are roots of $9x^2 + x + 10 = 0$,
then $P + Q + PQ =$ _____
- (72) If $f(x) = x^3 + 3x$, then $f(5) =$ _____
- (73) Find the probability of rolling a
sum of 8 when rolling two 6-sided die. _____
- (74) The smallest angle between
the hands on a clock at 4:16 is _____ degrees
- (75) If $3!(5!) = k!$, then $k =$ _____
- (76) Find the hypotenuse of a right triangle with
integer sides if the shortest leg is 5. _____
- (77) If $4\sqrt[3]{x+2} - 1 = 11$, then $x =$ _____
- (78) If $8^x = 12$, then $8^{x+1} =$ _____
- (79) If $\log_9 x = \frac{3}{2}$, then $x =$ _____
- *(80) 7400 inches = _____ feet

2015-2016 TMSCA Middle School Number Sense Key #2

- | | | | |
|----------------------|---------------------------------------|-----------------------|----------------------|
| (1) 31 | (23) 22 | (43) 72 | (63) 13 |
| (2) 4600 | (24) 6 | (44) 42 | (64) 92 |
| (3) 26 | (25) 5 | (45) 182 | (65) $\frac{13}{30}$ |
| (4) 16128 | (26) 20 | (46) 225 | |
| (5) 528 | | | (66) - 8 |
| (6) $\frac{3}{8}$ | (27) 9 | (47) 7 | (67) 2 |
| (7) 7 | (28) $\frac{5}{7}$ | (48) 45 | (68) 10 |
| (8) 62 | (29) 11336 | (49) 48 | (69) 112 |
| (9) 42 | *(30) 531143 - 587051 | *(50) 151532 - 167482 | |
| *(10) 47325 - 52305 | (31) 27 | (51) $11\frac{4}{15}$ | *(70) 659 - 727 |
| (11) $\frac{16}{25}$ | (32) 13 | (52) $15\frac{8}{21}$ | (71) 1 |
| (12) 18 | (33) 4.78 | (53) 81 | (72) 140 |
| (13) 3264 | (34) $132\frac{15}{64}$ | (54) $1\frac{6}{7}$ | (73) $\frac{5}{36}$ |
| (14) 63 | | | |
| (15) 196 | (35) 18.00 | (55) 81 | |
| (16) $\frac{31}{20}$ | (36) 6 | (56) 32 | (74) 32 |
| (17) 923 | (37) 2496 | (57) 32 | (75) 6 |
| (18) 576 | (38) 1280 | (58) 1 | (76) 13 |
| (19) CDXII | (39) 13 | (59) 162409 | (77) 25 |
| *(20) 20816 - 23006 | *(40) 28302 - 31280 | *(60) 1799 - 1987 | (78) 96 |
| (21) 168 | (41) $\frac{36}{7}$ or $5\frac{1}{7}$ | (61) 144 | (79) 27 |
| (22) 9212 | (42) $6\frac{3}{4}$ | (62) 90000 | *(80) 586 - 647 |