8

1st Score: _____	2nd Score: _____	3rd Score: _____	_____ . _____
S & G _____	S & G _____	S & G _____	
Grader: _____	Grader: _____	Grader: _____	**Final Score**

PLACE LABEL BELOW

Name:_____ School:_____

SS/ID Number:_____ City:_____

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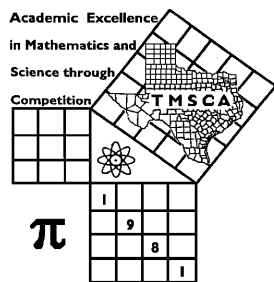
TMSCA MIDDLE SCHOOL

CALCULATOR

TEST #2 ©

OCTOBER 28, 2017

GENERAL DIRECTIONS

I. About this test:
   A. You will be given 30 minutes to take this test.
   B. There are 80 problems on this test.
II. How to write the answers:
   A. For all problems except stated problem as noted below write three significant digits.
      1. Examples (* means correct, but not recommended)
         Correct: 12.3, 123, 123.*, 1.23x10*, $1.23x10^0$*, $1.23x10^1$, $1.23x10^{01}$, .0190, $1.90x10^{-2}$
         Incorrect: 12.30, 123.0, $1.23(10)^2$, $1.23^.10^2$, $1.230x10^2$, $1.23*10^2$, 0.19, $1.9x10^{-2}$, $19.0x10^{-3}$, 1.90E-02
      2. Plus or minus one digit error in the third significant digit is permitted.
   B. For stated problems:
      1. Except for integer, dollar sign, and significant digit problems, as detailed below, answers to stated problems should be written with three significant digits.
      2. Integer problems are indicated by (integer) in the answer blank. Integer problems answers must be exact, no plus or minus one digit, no decimal point or scientific notation.
      3. Dollar sign ($) problems should be answered to the exact cent, but plus or minus one cent error is permitted. The decimal point and cents are required for exact dollar answers.
   III. Some symbols used on the test.
      A. Angle measure: rad means radians; deg means degrees.
      B. Inverse trigonometric functions: arcsin for inverse sine, etc.
      C. Special numbers: π for 3.14159 . . . ; e for 2.71828.
      D. Logarithms: Log means common (base 10); Ln means natural (base e).
   IV. Scoring:
   A. 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.

2017-2018 TMSCA Middle School Calculator Test 2

1. 3310 + 2460 --- 1=_____

2. −48 + 46 + 40 --- 2=_____

3. 7410 + 3200 + 2750 --- 3=_____

4. 20 − 36 + 31 − π --- 4=_____

5. −494 − 3410 − 3930 − 2960 -- 5=_____

6. 74.3 + 166 − 70.8 − 20.2 + 154 -- 6=_____

7. π − 4.86 + 0.793 − 5.58 − 3.79 ------------------------------------- 7=_____

8. 4.38 + 1.36 − 2.13 + 1.68 + 6.53 ------------------------------------- 8=_____

9. 83.8 x 153 x 374 --- 9=_____

10. 1520 x 1010 x 34.7 x 1690 --- 10=_____

11. Calculate the product of the first four even integers greater than
    one hundred. -- 11=_____

12. Calculate the mode of the following list of numbers. $2^0, 1^2, 2^2, 4, 8^0,$
    $2^3, 4, 2^1, 4^0$. -- 12=_____

13. 62 1/8 percent of 7,200,006 is what number? --------------------- 13=_____

14. (229/170)[268 − 654] -- 14=_____

15. 132/[35 x 105 x 100] -- 15=_____

16. $\left[\dfrac{105}{108}\right]$ [(114/71) + 0.784] ----------------------------------- 16=_____

17. {28/67}$\left[\dfrac{70}{11 + 82}\right]$ -- 17=_____

18. $\left[\dfrac{154/117}{74/166}\right]$ {0.00424 + 0.00121 − 0.00923} --------------------- 18=_____

19. $\dfrac{[0.00259/(4.22 \times 10^{-4})]/0.0136}{(0.00381 \times 0.00317)(40.6)}$ ----------------------------------- 19=_____

20. $\dfrac{4.68 + 4.8 + 3.63}{(19.9)(2.5)(2.55)}$ -- 20=_____

21. $\dfrac{115}{(45 - 101)} - \dfrac{(89 - 81)}{15}$ ---------------------------------- 21=_____

22. $\dfrac{(1350 \times 2790)/3710}{(1420 \times 0.0111) + 14}$ ----------------------------------- 22=_____

23. $\dfrac{(\pi)(90/100)(76/48)}{(62/68)}$ -- 23=_____

24. Patty purchased office supplies. Ink for $62.99, paper for $14.72,
    6 special folders for $3.29 each. Calculate the total cost of the
    office supplies including a 6 ¼% sales tax. --------------------- 24=$_____

25. Tally 1 is 13% greater than Tally 2 and Tally 2 is 8% greater than
    Tally 3. Calculate what percent greater Tally 1 is than Tally 3. --- 25=_____%

26. If f(x) = -3x^2 + 7x − 8, calculate the value of f(13). ------------- 26=_____INT.

27. $[5440 - (2460 + 1570)] + [(0.102)(6500 - 4620)]$ ------------ 27=_____

28. $\dfrac{(7.78 - 3.66)(0.0109 + 0.0112)}{(9.63 \times 10^{11})}$ ---------------------------------- 28=_____

29. $(395)[(14.6/20.1)(0.0508/0.0393)]$ ---------------------------- 29=_____

30. $\dfrac{(8.24 + 12.5)}{(2.83 \times 10^{11})}$ -- 30=_____

31. $(9.92)\left[(4.01 \times 10^{12}) - (6.89 \times 10^{12})\right]$ ---------------------------- 31=_____
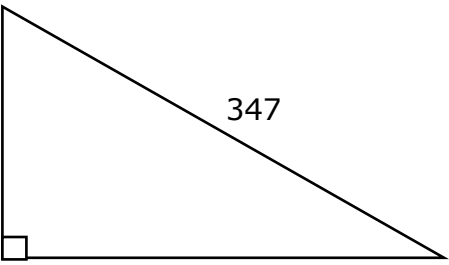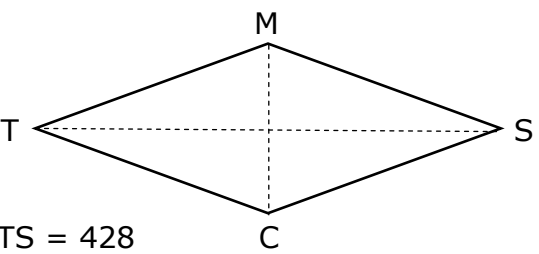
32. $[1020]\left[\dfrac{1/85.5}{1/95.1}\right]$ --- 32=_____

33. $\dfrac{1}{191} - \dfrac{1}{(475 + 146)}$ -------------------------------------- 33=_____

34. $\left[\dfrac{1/1270}{1/863}\right][3.82 \times 10^{6}]$ --------------------------------------- 34=_____

35. Calculate 1007^{2752}. --- 35=_____

36. Calculate the distance between (18,-2) and (-7,4) on a coordinate plane. -- 35=_____

30-60-90 TRIANGLE	RHOMBUS
347	M T ◄-----------► S C TS = 428 MC = 285
Area = ?	Area = ?
37=_____	38=_____

39. $\left[\dfrac{14200 + (1/(1.56 \times 10^{-4}))}{(4070/3200) - 0.907} \right]^2$ -- 39=_____

40. $\dfrac{(10800 + 67500)^3}{(0.0159 - 0.0429)^2}$ -- 40=_____

41. $(151 + 120)^2 (0.199 + 0.125)^2$ ---------------------------------- 41=_____

42. $\sqrt{(1970/1590) + 0.978 - 0.549}$ ---------------------------------- 42=_____

43. $\sqrt{103} + \sqrt{295 + 278} - (\pi)\sqrt{259}$ ---------------------------------- 43=_____
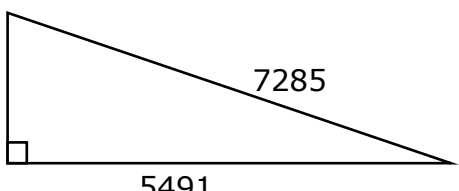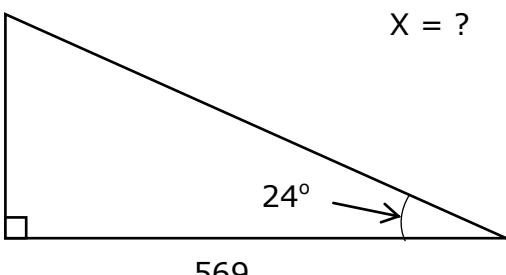
44. $(39)\sqrt{90.2 + 301} + 40.1$ -- 44=_____

45. $\dfrac{(2990 + 2390)^{1/4}}{(3180 - 3090)^{1/5}}$ -- 45=_____

46. $\left[\sqrt[3]{(39200/12100)(43200)} \right]^2$ ---------------------------------- 46=_____

47. A 107 foot rope is cut in half and then those pieces cut in half again. This procedure is done a total of 6 times. Calculate the length of each piece of rope in feet. -- 47=_____ft.

48. An engine running at 1600 revolutions per minute, (RPM), will turn how many revolutions in a 24 hour period? --------------------- 48=_____INT.

RIGHT TRIANGLE	RIGHT TRIANGLE
49=_____	50-_____

51. $\sqrt{\dfrac{2.41}{(2.75)(3.32)}} + \dfrac{(2.22\text{x}10^5 - 1.47\text{x}10^5)}{(41800 + 98200)}$ ----------------------- 51=_____

52. $\left[\dfrac{11.6 - 7.87 + \sqrt{255/91.8}}{-16 + 17.4}\right]^5$ ------------------------------------- 52=_____

53. $\dfrac{\sqrt{0.486 + \pi + 2.22}}{(0.0882 - 0.321 + 0.692)^3}$ ------------------------------------- 53=_____

54. $0.121 + \sqrt{(130)/(1690)} - (0.189 + 0.218)^2$ -------------------- 54=_____

55. $(44.6)(8.59\text{x}10^8)^{1/4} - [(3.60\text{x}10^5)(1.00\text{x}10^6)]^{1/3}$ ------------- 55=_____
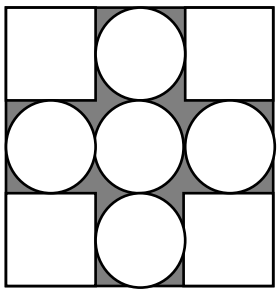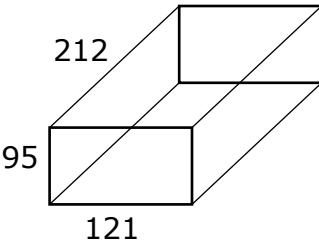
56. $\sqrt{\dfrac{(26800)(1.02\text{x}10^5)}{(33900)(38900)}} - 1.25 + 0.729$ -------------------------- 56=_____

57. $\sqrt{\dfrac{(84.3)(9.98)}{(1210) + (997)}} - 3.89$ -- 57=_____

58. (deg) $\tan(261°) + (157/713)$ ------------------------------------- 58=_____

59. Calculate the probability of rolling a 5 on a fair die. -------------- 59=_____

60. $2500 is deposited in an account at 3 ½% for five years compounded annually. Calculate the total amount in the account after those five years. -- 60=$_____

SQUARE, CONGRUENT CIRCLES AND CONGRUENT SMALLER SQUARES	RECTANGULAR PRISM

Perimeter of large square = 22510

Shaded Area = ?

61=_____

212

95

121

Volume = ?

62=_____

63. $\dfrac{11! + 10!}{15!}$ -- 63=_____

64. (deg) $(89.2 + 70.8)\sin(42.2°)$ -- 64=_____

65. (deg) $\dfrac{\sin(7.01°)}{1240}$ -- 65=_____

66. (rad) $\dfrac{\tan(101)}{1030/1340}$ -- 66=_____

67. (rad) $\sin\left[\dfrac{(56.4)(\pi)}{(20.1)(12.9)}\right]$ ------------------------------------ 67=_____
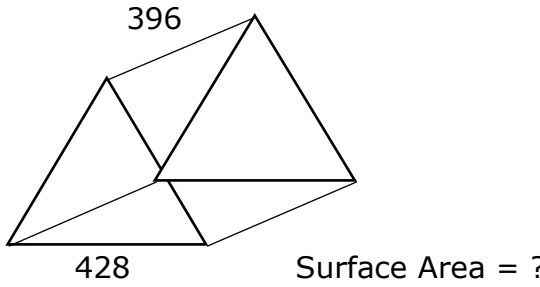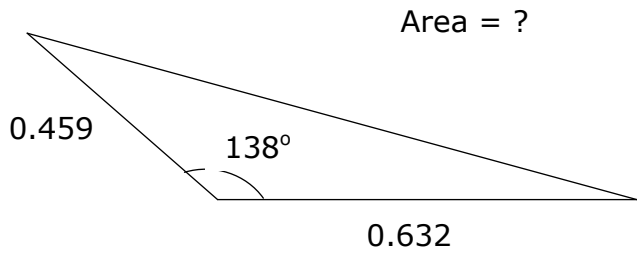
68. (deg) $\dfrac{\sin(11.1°)}{\tan(11.1°)}[11.5]$ ------------------------------------ 68=_____

69. (deg) $\dfrac{\cos(9°)}{68.4 + 131}$ -- 69=_____

70. $(42.5 - 33.8)^{0.22 - 0.148}$ ------------------------------------ 70=_____

71. Calculate the number of liters of a 12% alcohol solution that must be mixed with 20 liters of a 50% alcohol solution to obtain a 35% alcohol solution. -- 71=_____l

72. A cube of wood, one foot on an edge, weighs 12 pounds. The largest sphere possible is cut from the cube. Assuming the density is uniform throughout, calculate the weight of the sphere in pounds. -- 72=_____lbs.

EQUILATERAL TRIANGULAR PRISM	SCALENE TRIANGLE
396 428 Surface Area = ? 73=_____	Area = ? 0.459 138° 0.632 74=_____

75. $\text{Ln}\left[\dfrac{22.3 + 20.7 + 27.9}{348 + 441 - 63.1}\right]$ -- 75=_____

76. $\dfrac{(0.607)^{0.747}(0.475)^{0.589}}{(17.4 - 16)^{-12}}$ -- 76=_____

77. $(6450)10^{(0.91)(5.78)}$ -- 77=_____

78. $\dfrac{\text{Log}[9910 + (355)(48.7)]}{2.43 + \text{Log}[166 + 281]}$ -- 78=_____

79. $1 + 2 + 3 + \ldots + 468$ -- 79=_____

80. $1 + \dfrac{(0.51)^4}{2} - \dfrac{(0.51)^6}{6} + \dfrac{(0.51)^8}{24} - \dfrac{(0.51)^{10}}{120}$ -------------------- 80=_____

2017-2018 TMSCA M8iddle School Calculator Test 2 Answer Key

Page 1	Page 2	Page 3	Page 4
1 = 5770 = 5.77×10^3	14 = -520 = -5.20×10^2	27 = 1600 = 1.60×10^3	39 = 3.19×10^9
2 = 38.0 = 3.80×10^1	15 = 0.000359 = 3.59×10^{-4}	28 = 9.46×10^{-14}	40 = 6.59×10^{17} 41 = 7710 = 7.71×10^3
3 = 13400 = 1.34×10^4	16 = 2.32 = 2.32×10^0	29 = 371 = 3.71×10^2	42 = 1.29 = 1.29×10^0
4 = 11.9 = 1.19×10^1	17 = 0.315 = 3.15×10^{-1}	30 = 7.33×10^{-11}	43 = -16.5 = -1.65×10^1
5 = -10800 = -1.08×10^4	18 = -0.0112 = -1.12×10^{-2}	31 = -2.86×10^{13}	44 = 810 = 8.10×10^2
6 = 303 = 3.03×10^2	19 = 920000 = 9.20×10^5	32 = 1130 = 1.13×10^3	45 = 3.48 = 3.48×10^0
7 = -10.3 = -1.03×10^1	20 = 0.103 = 1.03×10^{-1}	33 = 0.00363 = 3.63×10^{-3}	46 = 2700 = 2.70×10^3
8 = 11.8 = 1.18×10^1	21 = -2.59 = -2.59×10^0	34 = 2.60×10^6	
9 = 4.80×10^6	22 = 34.1 = 3.41×10^1		47 = 1.67 = 1.67×10^0
10 = 9.00×10^{10}	23 = 4.91 = 4.91×10^0	35 = 2.17×10^{8264}	
			48 = 2304000 INT.
11 = 1.21×10^8	24 = $103.54	36 = 25.7 = 2.57×10^1	49 = 1.31×10^7
12 = 1.00 = 1.00×10^0	25 = 22.0 = 2.20×10^1	37 = 26100 = 2.61×10^4	50 = 253 = 2.53×10^2
13 = 4470000 = 4.47×10^6	26 = -424 INT.	38 = 61000 = 6.10×10^4	

2017-2018 TMSCA Middle School Calculator Test 2 Answer Key

Page 5	Page 6	Page 7

Page 5

51 = 1.05
   = 1.05×10^0

52 = 851
   = 8.51×10^2

53 = 25.0
   = 2.50×10^1

54 = 0.233
   = 2.33×10^{-1}

55 = 522
   = 5.22×10^2

56 = 0.919
   = 9.19×10^{-1}

57 = -3.27
   = -3.27×10^0

58 = 6.53
   = 6.53×10^0

59 = 0.167
   = 1.67×10^{-1}

60 = $2969.22

Page 6

61 = 3780000
   = 3.78×10^6

62 = 2440000
   = 2.44×10^6

63 = 0.0000333
   = 3.33×10^{-5}

64 = 107
   = 1.07×10^2

65 = 9.84×10^{-5}

66 = 0.659
   = 6.59×10^{-1}

67 = 0.631
   = 6.31×10^{-1}

68 = 11.3
   = 1.13×10^1

69 = 0.00495
   = 4.95×10^{-3}

70 = 1.17
   = 1.17×10^0

71 = 13.0
   = 1.30×10^1

72 = 6.28
   = 6.28×10^0

Page 7

73 = 667000
   = 6.67×10^5

74 = 0.0971
   = 9.71×10^{-2}

75 = -2.33
   = -2.33×10^0

76 = 25.2
   = 2.52×10^1

77 = 1.17×10^9

78 = 0.873
   = 8.73×10^{-1}

79 = 110000
   = 1.10×10^5

80 = 1.03
   = 1.03×10^0