8

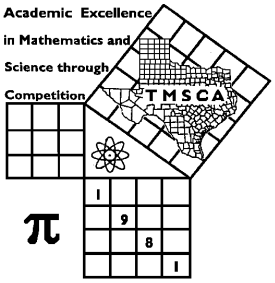
1st Score: _____	2nd Score: _____	3rd Score: _____	
S & G _____	S & G _____	S & G _____	_____. _____
Grader: _____	Grader: _____	Grader: _____	**Final Score**

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 TUNE-UP TEST © 2018

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, $1.23(10)^{2}$, $1.23\cdot10^{2}$, $1.230x10^{2}$, $1.23*10^{2}$, 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 Tune-Up On-Line Meet

1. 1190 + 645 ---------- 1=_____

2. 6.8 + 8.3 + 5.5 ---------- 2=_____

3. 12 – 67 – 63 ---------- 3=_____

4. 15 – π – 9 – 10 ---------- 4=_____

5. 103 – 37 + 53 – 175 ---------- 5=_____

6. 47.5 + 46.8 – 129 – 176 + 56 ---------- 6=_____

7. 2.4 – 5.44 + 2.49 – 4.18 – π ---------- 7=_____

8. 0.222 + 1.29 – 1.48 + 0.808 + 0.39 ---------- 8=_____

9. 432 x 316 x 46.3 ---------- 9=_____

10. 7210 x 132 x 489 x 937 ---------- 10=_____

11. Calculate the rational number that is halfway between nine hundred twenty-two thousandths and nine-thirteenths. ---------- 11=_____

12. Four times a number increased by thirteen is eight less than the opposite of the number. Calculate the number. ---------- 12=_____

13. Tonya completed her calculator test attempting every problem. She missed seven problems. Calculate her score. ---------- 13=_____INT.

14. $(-608/328)[388 - 202]$ ---------- 14=_____

15. $245/[228 \times 131 \times 319]$ ---------- 15=_____

16. $\left[\frac{341}{124}\right][(50/293) - 0.17]$ ---------- 16=_____

17. $\{-147/97\}\left[\frac{171}{159 + 58}\right]$ ---------- 17=_____

18. $\left[\frac{53/155}{47/46}\right]\{0.00255 + 0.00347 - 0.0011\}$ ---------- 18=_____

19. $\frac{[0.588/(0.27)]/0.00121}{(29.1 \times 16.2)(172)}$ ---------- 19=_____

20. $\frac{(\pi)(4/18)(7/5)}{121}$ ---------- 20=_____

21. $\frac{4320 + 868 + 5520}{(9.87 \times 10^{-4})(\pi)(112)}$ ---------- 21=_____

22. $\left[\frac{3580 + 2550}{4300 - 4080}\right]\left[\frac{1930}{4220}\right]$ ---------- 22=_____

23. $\frac{[-(349 + 632)(1470 - 1120)]}{(1.53 \times 10^{-5}/(0.0152))}$ ---------- 23=_____

24. In a 30-60-90 triangle, the hypotenuse measures 82.5 inches.
Calculate the perimeter of the triangle. ---------- 24=_____in.

25. Calculate the harmonic mean of the first five prime numbers. --- 25=_____

26. Convert 48 square feet to square centimeters. ---------- 26=_____cm^2

27. $\dfrac{(3.44\text{x}10^{11}) + (4.00\text{x}10^{11})}{(-0.00153)(0.00266) - 3.08\text{x}10^{-6}}$ ---------- 27=_____

28. $\dfrac{(14 + 9.16)(0.587 + 0.355)}{(1.35\text{x}10^{12})}$ ---------- 28=_____

29. $(2.12\text{x}10^{-4})\left[(8.97\text{x}10^{-4}/0.00489)(150/131)\right]$ ---------- 29=_____

30. $[0.0183]\left[\dfrac{1/93.7}{1/66.3}\right]$ ---------- 30=_____

31. $\dfrac{(0.0208 + 0.0191)}{(2.79\text{x}10^{12})}$ ---------- 31=_____

32. $\dfrac{1}{-0.275} + \dfrac{1}{(0.0852 - 0.242)}$ ---------- 32=_____

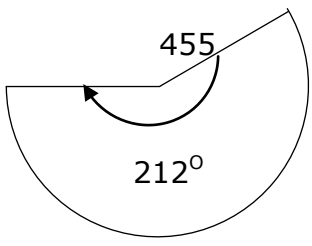
33. $\dfrac{1}{56.7} - \dfrac{1}{77.5} + \dfrac{1}{109}$ ---------- 33=_____

34. $\left[\dfrac{1/165}{1/153}\right] + [0.749]$ ---------- 34=_____

35. In an election for a high school student president 1,426 students voted for one of two candidates. Randy won the election by 112 votes. Calculate how many votes his opponent received. -------- 35=_____INT.

36. When Hurricane Harvey hit, gas prices in our town went from $1.989 to $2.699 overnight. Calculate the percent increase in price. ---------- 36=_____%

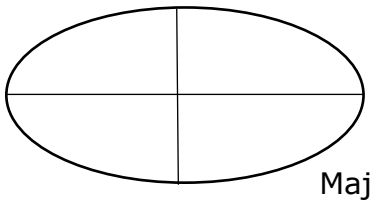
SECTOR OF A CIRCLE



Area = ?

37=_____

ELLIPSE



Major Axis = 19.8

Minor Axis = 9.9

Area = ?

38=_____

39. $(1590 + 1850 + 632)^2(183 + 94.6)^2$ ---------- 39=_____

40. $(48.2 + 22.7)^2(194 + 331)^2$ ---------- 40=_____

41. $\left[\frac{20700 + (1/(2.50\text{x}10^{-5}))}{(28800/6900) - 0.567}\right]^2$ ---------- 41=_____

42. $\sqrt{4560 - 4550 + 1160} - \sqrt{2180}$ ---------- 42=_____

43. $\sqrt{(695/650) + 0.973 - 0.174}$ ---------- 43=_____

44. $(6180)\sqrt{1770 + 14400 + 3910}$ ---------- 44=_____

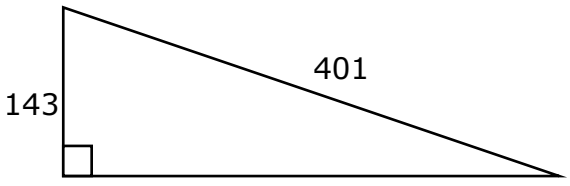
45. $\frac{1}{\sqrt{131 + 36.4 + 45.3}} + \left(\frac{1}{\sqrt{9.26}}\right)^2$ ---------- 45=_____

46. $\frac{(341 + 286)^{1/3}}{(71.6 - 66)^{1/3}}$ ---------- 46=_____

47. Calculate the number of liters of water that must be added to 100 liters of a 23% alcohol solution in order to produce a 10% alcohol solution. ---------- 47=_____L

48. Calculate the length of the longest diagonal in a regular decagon with a side length of 2.22 inches. ---------- 48=_____in.

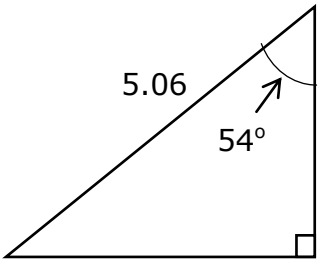
RIGHT TRIANGLE



Perimeter = ?

49=_____

RIGHT TRIANGLE



Perimeter = ?

50=_____

51. $\left[\frac{\sqrt{\sqrt{106 - 27.9}}}{-(108 - 56.1)}\right]^2 [0.00149 + 0.00678]$ ---------- 51=_____

52. $\left[\frac{46000 + 51100 + \sqrt{1.07\text{x}10^9 + 4.09\text{x}10^9}}{30700/5230}\right]^2$ ---------- 52=_____

53. $\frac{(188 + 279 - 383)^3}{\sqrt{0.697 + 0.773 + 0.157}}$ ---------- 53=_____

54. $\sqrt{\frac{(33300)(46500)}{(1.14\text{x}10^5)(6330)}} - 0.442 + 1.36$ ---------- 54=_____

55. $(228)(6.46\text{x}10^8)^{1/2} - [(2.10\text{x}10^{13})(4.65\text{x}10^{13})]^{1/4}$ ---- 55=_____

56. $\sqrt{\frac{1/(634 - 629)}{(13.1)(126 + 43.5)^6}}$ ---------- 56=_____

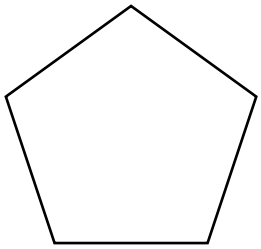
57. $\sqrt{\frac{1/(35 - 12.5)}{(51)(50.8 + 29.1)^4}}$ ---------- 57=_____

58. $\sqrt{\frac{(11.6)(199)}{(11) + (5.05)}} + 1/(0.437)^3$ ---------- 58=_____

59. Adam weighs 128 pounds and Tim weighs 102 pounds. If they sit at opposite ends of a 17 foot seesaw, calculate how far in feet from Adam should the fulcrum be placed in order to balance the seesaw. ---------- 59=_____ft.

60. Dora paddled her canoe 5 miles downriver in 1 hour with the current. The return trip against the current took 2 hours and 15 minutes. Calculate the rate of the current. ---------- 60=_____mph

REGULAR PENTAGON



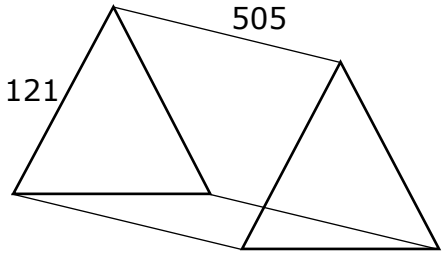
Side = 22.34

Area = 858.65

Apothem = ?

61=_____

EQUILATERAL TRIANGLE PRISM



Volume = ?

62=_____

63. $\frac{12! - 15!}{10!}$ ---------- 63=_____

64. $(50200 - 78400)^{-4}(1.11 \times 10^{9})$ ---------- 64=_____

65. (deg) $\frac{\sin(9.28°)}{281}$ ---------- 65=_____

66. (deg) $(35.2 - 63.9)\cos(175°) + 5.03$ ---------- 66=_____

67. (deg) $\tan(168° - 242°) + 2.99$ ---------- 67=_____

68. (deg) $\frac{\sin(23.1°)}{\tan(23.1°)}[74.3]$ ---------- 68=_____

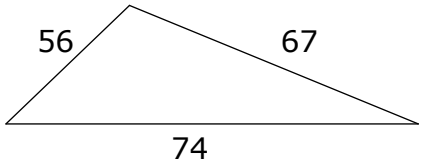
69. (rad) $\tan[(0.884 - 1.2)(0.449)]$ ---------- 69=_____

70. $(122 - 79.8)^{0.3 - 0.279}$ ---------- 70=_____

71. A jar contains 15 red, 13 blue and 8 green marbles of the same size. Calculate the probability of drawing a red marble, then a blue marble, if you replace the 1st marble drawn. ---------- 71=_____

72. The volume of a sphere is 2312 cm^3. Calculate the surface area of the sphere in cm^2. ---------- 72=_____cm^2

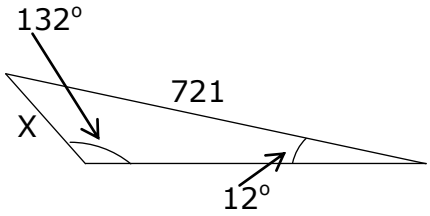
SCALENE TRIANGLE



Area = ?

73=_____

SCALENE TRIANGLE



X = ?

74=_____

75. $\frac{\text{Log}(9.52\text{x}10^{5} + 2.03\text{x}10^{6})}{19.8}$ ---------- 75=_____

76. $\frac{(5.19)^{0.264}(4.81)^{0.192}}{(6.04 - 3.12)^{-8}}$ ---------- 76=_____

77. $3\text{Log}\sqrt{\frac{(18.3)(5.25)}{146+38.2}}$ ---------- 77=_____

78. $\frac{(e^{0.11})(e^{0.384})(e^{0.536})}{\text{Ln}(\pi + 5.81)}$ ---------- 78=_____

79. $1 + 3 + 5 + \ldots + 663$ ---------- 79=_____

80. $\frac{1}{(0.84)} + \frac{1}{3(0.84)^{3}} + \frac{1}{5(0.84)^{5}} + \frac{1}{7(0.84)^{7}}$ ---------- 80=_____

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Page 1

1 = 1840
= 1.84×10^{3}

2 = 20.6
= 2.06×10^{1}

3 = -118
= -1.18×10^{2}

4 = -7.14
= -7.14×10^{0}

5 = -56.0
= -5.60×10^{1}

6 = -155
= -1.55×10^{2}

7 = -7.87
= -7.87×10^{0}

8 = 1.23
= 1.23×10^{0}

9 = 6.32×10^{6}

10 = 4.36×10^{11}

11 = 0.807
= 8.07×10^{-1}

12 = -4.20
= -4.20×10^{0}

13 = 337 INT.

Page 2

14 = -345
= -3.45×10^{2}

15 = 2.57×10^{-5}

16 = 0.00178
= 1.78×10^{-3}

17 = -1.19
= -1.19×10^{0}

18 = 0.00165
= 1.65×10^{-3}

19 = 0.0222
= 2.22×10^{-2}

20 = 0.00808
= 8.08×10^{-3}

21 = 30800
= 3.08×10^{4}

22 = 12.7
= 1.27×10^{1}

23 = -3.41×10^{8}

24 = 195
= 1.95×10^{2}

25 = 3.95
= 3.95×10^{0}

26 = 44600
= 4.46×10^{4}

Page 3

27 = -1.04×10^{17}

28 = 1.62×10^{-11}

29 = 4.45×10^{-5}

30 = 0.0129
= 1.29×10^{-2}

31 = 1.43×10^{-14}

32 = -10.0
= -1.00×10^{1}

33 = 0.0139
= 1.39×10^{-2}

34 = 1.68
= 1.68×10^{0}

35 = 657 INT.

36 = 35.7
= 3.57×10^{1}

37 = 383000
= 3.83×10^{5}

38 = 154
= 1.54×10^{2}

Page 4

39 = 1.28×10^{12}

40 = 1.39×10^{9}

41 = 2.83×10^{8}

42 = -12.5
= -1.25×10^{1}

43 = 1.37
= 1.37×10^{0}

44 = 876000
= 8.76×10^{5}

45 = 0.177
= 1.77×10^{-1}

46 = 4.82
= 4.82×10^{0}

47 = 130
= 1.30×10^{2}

48 = 7.18
= 7.18×10^{0}

49 = 919
= 9.19×10^{2}

50 = 12.1
= 1.21×10^{1}

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Page 5

51 = 2.71×10^{-5}

52 = 8.28×10^{8}

53 = 465000
= 4.65×10^{5}

54 = 2.38
= 2.38×10^{0}

55 = 205000
= 2.05×10^{5}

56 = 2.54×10^{-8}

57 = 4.62×10^{-6}

58 = 24.0
= 2.40×10^{1}

59 = 7.54
= 7.54×10^{0}

60 = 1.39
= 1.39×10^{0}

Page 6

61 = 15.4
= 1.54×10^{1}

62 = 3200000
= 3.20×10^{6}

63 = -360000
= -3.60×10^{5}

64 = 1.76×10^{-9}

65 = 0.000574
= 5.74×10^{-4}

66 = 33.6
= 3.36×10^{1}

67 = -0.497
= -4.97×10^{-1}

68 = 68.3
= 6.83×10^{1}

69 = -0.143
= -1.43×10^{-1}

70 = 1.08
= 1.08×10^{0}

71 = 0.150
= 1.50×10^{-1}

72 = 846
= 8.46×10^{2}

Page 7

73 = 1800
= 1.80×10^{3}

74 = 202
= 2.02×10^{2}

75 = 0.327
= 3.27×10^{-1}

76 = 11000
= 1.10×10^{4}

77 = -0.424
= -4.24×10^{-1}

78 = 1.28
= 1.28×10^{0}

79 = 110000
= 1.10×10^{5}

80 = 2.72
= 2.72×10^{0}