

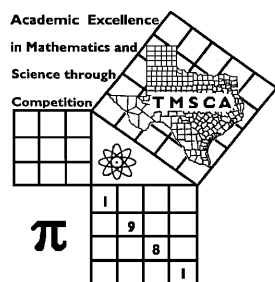
1st Score: _____	2nd Score: _____	3rd Score: _____	_____. ____ Final Score
S & G _____	S & G _____	S & G _____	
Grader: _____	Grader: _____	Grader: _____	

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 CALCULATOR SUN RIDGE MEET © 2019

GENERAL DIRECTIONS

I. About this test:

- A. You will be given 30 minutes to take this test. There are 80 problems on this test.
- B. ALL calculators must be cleared. HP Prime and Casio Prizm calculators are NOT permitted.**

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*}, 1.23x10¹, 1.23x10⁰¹, .0190, 1.90x10⁻²
 Incorrect: 12.30, 123.0, 1.23(10)², 1.23·10², 1.230x10², 1.23*10², 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.

2018-2019 TMSCA Middle School Calculator Gear-Up On-Line Meet

1. $2350 - 2700$ ----- 1= _____

2. $19 + 26 + 5$ ----- 2= _____

3. $-686 + 2850 + 4300$ ----- 3= _____

4. $23 - \pi - 21 + 19$ ----- 4= _____

5. $128 - 266 - 596 - 509$ ----- 5= _____

6. $195 - 149 - 184 + 164 + 136$ ----- 6= _____

7. $1.33 + 1.39 + 1.82 + 1.44 + 0.928$ ----- 7= _____

8. $(0.986 + 0.299 - \pi) - (0.389 + 1.38)$ ----- 8= _____

9. $42.2 \times 244 \times 121$ ----- 9= _____

10. $505 \times 5100 \times 4680 \times 4640$ ----- 10= _____

11. Calculate the quotient of 1267 and 41. ----- 11= _____

12. At the local donut shop, the prices for donuts are 98¢ for old fashioned, 95¢ for glazed or chocolate, and \$1.29 for fancy. If you buy a dozen or more, you receive a 10% discount. Jerry wanted 10 glazed, 10 chocolate, 8 fancy, and 8 old fashioned. Calculate the cost of the donuts. ----- 12=\$ _____

13. Calculate the number of degrees in $7\pi/4$ radians. ----- 13= _____ °

14. $(110)[127 \times 224 \times 240]$ -----14= _____

15. $(39)[151 \times 212/50]$ -----15= _____

16. $(-141 + 420)[470 - 488 - 455]$ -----16= _____

17. $\left[\frac{415}{379}\right] [(512/163) + 1.36]$ -----17= _____

18. $\left[\frac{102/88}{195/149}\right] \{0.0783 + 0.0701 - 0.0577\}$ -----18= _____

19. $\left[\frac{(987/635) - (1030/739)}{2.91/(\pi)}\right]$ -----19= _____

20. $\frac{25.3 + 52.9 + 43}{(2.06 \times 10^{-4})(235)(290)}$ -----20= _____

21. $\frac{201}{(98 - 212)} - \frac{(191 - 185)}{179}$ -----21= _____

22. $\frac{(3.62 + 1.51 - 3.22)}{\{(1300 - 360)/(29.1)\}}$ -----22= _____

23. $\frac{(\pi)(455/451)(325/64)}{(92/552)}$ -----23= _____

24. Doug and his wife purchased a used car. They make a down payment of \$1,200 and will be making payments for 5 years. Their payments are 319.56 per month. Calculate the total they paid for their vehicle. -----24=\$ _____

25. Vincent went on a trip to Japan. He exchanged \$500 into Japanese Yen. The exchange rate is \$1 to 109.50393 Yen. Calculate how many Yen he received for his \$500. -----25= _____ ¥

26. Calculate the measure of an interior angle of a regular octagon in degrees. -----26= _____

27. $\frac{(0.0057 - 0.00484)(0.444 + 0.148)}{(2.07 \times 10^{11})}$ -----27= _____

28. $\frac{(1.63 + 1.34)(31.6 + 98.8)}{(4.29 \times 10^{11})}$ -----28= _____

29. $\frac{(2.60 \times 10^5) + (1.51 \times 10^6)}{(-0.249)(0.0658) - 0.00502}$ -----29= _____

30. $(5.74) \left[\frac{60.7}{(2.72 \times 10^{11})} \right]$ -----30= _____

31. $\frac{1}{-0.00387} + \frac{1}{(0.0302 - 0.0347)}$ -----31= _____

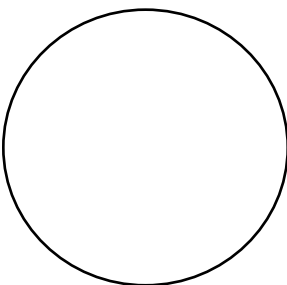
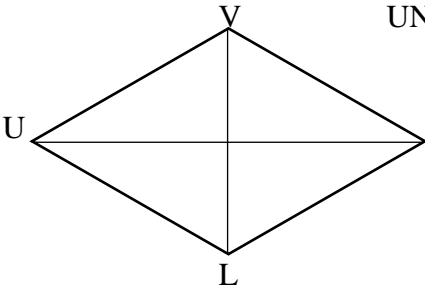
32. $(8.81) \left[(5.20 \times 10^{10}) - (4.68 \times 10^{10}) \right]$ -----32= _____

33. $\frac{1}{4490} - \frac{1}{1230} + \frac{1}{1080}$ -----33= _____

34. $1/(0.011 - 0.0414) - 1/(-0.0124)$ -----34= _____

35. Calculate the value of 52135 Base 6 in Base 10. -----35= _____ INT.

36. A cube has a volume of 267 cubic inches. Calculate the new volume if the length of a side is cut in half. -----36= _____ in.³

CIRCLE	RHOMBUS
	
Circumference = 92104	UN = 229.71 Area = 21741
Area = ?	LV = ?
37= _____	38= _____

39. $(2.77 + 2.36)^2(0.056 + 0.0186)^2$ -----39= _____

40. $\sqrt{\frac{3300 + 5410}{493 - 407}}$ -----40= _____

41. $\left[\frac{1170 + (1/(8.95 \times 10^{-4}))}{(356/2080) - 0.126} \right]^2$ -----41= _____

42. $\sqrt{(128/59.6) + 1.88 - 1.2}$ -----42= _____

43. $(1/\pi)^3 \sqrt{\frac{0.0479 + 0.144}{0.158 - 0.151}}$ -----43= _____

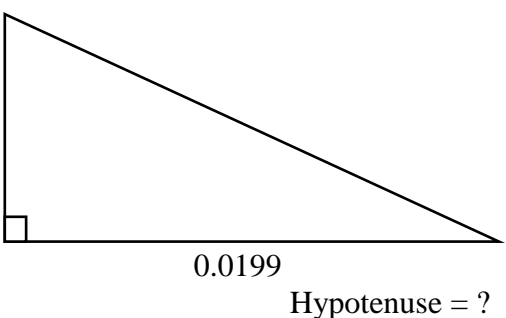
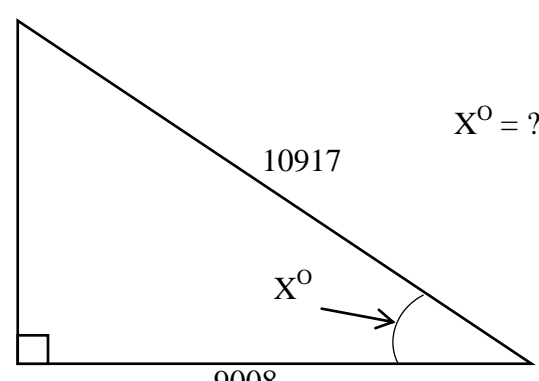
44. $(1/(9.38 \times 10^{-4}))(21600 - 5670)^2$ -----44= _____

45. $\frac{1}{\sqrt{6930 + 5770 + 4490}} + \left(\frac{1}{\sqrt{17.5}} \right)^2$ -----45= _____

46. $(684)^4 \sqrt[4]{1660 + 5580 - 3650}$ -----46= _____

47. The cost of an item went from \$129.35 to \$99.18. Calculate the percent change in cost. -----47= _____ %

48. Calculate pi to the tenth power plus 10 the power of pi. -----48= _____

RIGHT TRIANGLE	RIGHT TRIANGLE
 <p style="text-align: center;">0.007</p> <p style="text-align: center;">0.0199</p> <p style="text-align: center;">Hypotenuse = ?</p>	 <p style="text-align: right;">$X^\circ = ?$</p> <p style="text-align: center;">10917</p> <p style="text-align: center;">X°</p> <p style="text-align: center;">9008</p>
49= _____	50= _____

51. $\frac{\sqrt{4.61 + \pi + 5.16}}{(7260 - 12300 + 16700)^3}$ -----51=_____

52. $\left[\frac{704 - 675 + \sqrt{56500/93}}{-71.9 + 88}\right]^2$ -----52=_____

53. $\sqrt{\frac{3.83 \times 10^{14}}{(758)(98000)}} + \frac{(3580 - 3800)}{(0.0316 + 0.018)}$ -----53=_____

54. $(937)^2 \sqrt{(40.3)/(136)} - (85800 + 1.18 \times 10^5)$ -----54=_____

55. $0.152 + \sqrt{(74.3)/(443)} - (0.366 + 0.427)^2$ -----55=_____

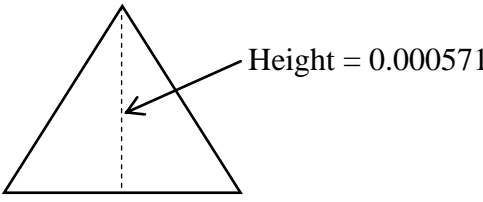
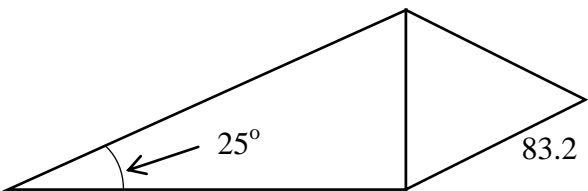
56. $(500)(2.96 \times 10^{10})^{1/4} - [(91500)(2.73 \times 10^5)]^{1/2}$ -----56=_____

57. $\sqrt{\frac{1/(2860 - 649)}{(5.86)(40 + 46.4)^{-3}}}$ -----57=_____

58. $\sqrt{\frac{(5.02)(8.99)}{(682) + (241)}} + 1/(0.47)^{-2}$ -----58=_____

59. Victoria can paddle her canoe 10 miles downstream in 45 minutes. She makes the return trip in 2 ½ hours. Calculate the speed of the stream in miles per hour. -----59=_____mph

60. Calculate the 51st pentagonal number. -----60=_____INT.

<p style="text-align: center;">EQUILATERAL TRIANGLE</p>  <p style="text-align: right;">Area = ?</p> <p>61= _____</p>	<p style="text-align: center;">EQUILATERAL AND RIGHT TRIANGLE</p>  <p style="text-align: right;">Area = ?</p> <p>62= _____</p>
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63. $\frac{6! + 4!}{8!}$ ----- 63= _____

64. (deg) $\frac{\tan(9.14^\circ)}{2180}$ ----- 64= _____

65. (deg) $(95.2 + 47.1)\cos(39.3^\circ)$ ----- 65= _____

66. (deg) $[54.2]\cos(71.2^\circ - 63.8^\circ)$ ----- 66= _____

67. (rad) $\cos\left[\frac{(184)(\pi)}{(56.9)(1.15)}\right]$ ----- 67= _____

68. (deg) $\frac{\sin(3.18^\circ) - \tan(3.18^\circ)}{\sin(3.18^\circ)}$ ----- 68= _____

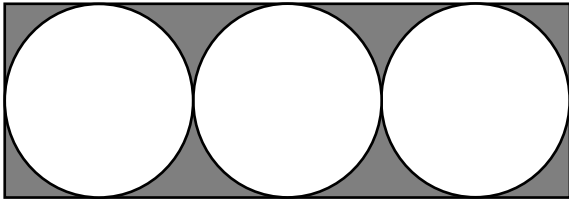
69. (rad) $\tan[(2.34 - 2.07)(13.5)]$ ----- 69= _____

70. $(559 - 365)e^{\pi - 0.785}$ ----- 70= _____

71. Calculate the probability of rolling a double on a pair of dice. ----- 71= _____

72. Right triangles STV and RSM are similar. The length of each side of triangle STV is 5.5 times the length of each corresponding side of triangle RSM. Calculate how many times greater the area of triangle STV is than triangle RSM. ----- 72= _____

RECTANGLE AND CONGRUENT CIRCLES

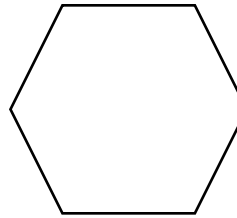


Radius of Circle = 191

Shaded Area = ?

73= _____

REGULAR HEXAGON



Area = 41.569

Side = ?

74= _____

75. $\ln\left[\frac{53 + 92.2 + 70.2}{277 + 450 - 139}\right]$ -----75= _____

76. $\frac{(3.85)^{0.116}(1.93)^{0.857}}{(1.14 - 0.496)^{-5}}$ -----76= _____

77. $\text{Log}(15.2 + 2.77 + 10.8)$ -----77= _____

78. $\frac{\text{Log}[15700 + (656)(27.1)]}{1.53 + \text{Log}[3440 + 3080]}$ -----78= _____

79. $2 + 4 + 6 + \dots + 344$ -----79= _____

80. $(0.189) - \frac{(0.189)^2}{2} + \frac{(0.189)^3}{3} - \frac{(0.189)^4}{4}$ -----80= _____

2018-2019 TMSCA Middle School Calculator Gear-Up On-Line Meet Answer Key

<u>Page 1</u>	<u>Page 2</u>	<u>Page 3</u>	<u>Page 4</u>
1 = -350 = -3.50×10^2	14 = 7.51×10^8	27 = 2.46×10^{-15}	39 = 0.146 = 1.46×10^{-1}
2 = 50.0 = 5.00×10^1	15 = 25000 = 2.50×10^4	28 = 9.03×10^{-10}	40 = 10.1 = 1.01×10^1
3 = 6460 = 6.46×10^3	16 = -132000 = -1.32×10^5	29 = -8.27×10^7	41 = 2.57×10^9
4 = 17.9 = 1.79×10^1	17 = 4.93 = 4.93×10^0	30 = 1.28×10^{-9}	42 = 1.68 = 1.68×10^0
5 = -1240 = -1.24×10^3	18 = 0.0803 = 8.03×10^{-2}	31 = -481 = -4.81×10^2	43 = 0.960 = 9.60×10^{-1}
6 = 162 = 1.62×10^2	19 = 0.173 = 1.73×10^{-1}	32 = 4.58×10^{10}	44 = 2.71×10^{11}
7 = 6.91 = 6.91×10^0	20 = 8.63 = 8.63×10^0	33 = 0.000336 = 3.36×10^{-4}	45 = 0.0648 = 6.48×10^{-2}
8 = -3.63 = -3.63×10^0	21 = -1.80 = -1.80×10^0	34 = 47.8 = 4.78×10^1	46 = 5290 = 5.29×10^3
9 = 1.25×10^6	22 = 0.0591 = 5.91×10^{-2}	35 = 6971 INT.	47 = -23.3 = -2.33×10^1
10 = 5.59×10^{13}	23 = 96.6 = 9.66×10^1	36 = 33.4 = 3.34×10^1	48 = 95000 = 9.50×10^4
11 = 30.9 = 3.09×10^1	24 = \$20373.60	37 = 6.75×10^8	49 = 0.0211 = 2.11×10^{-2}
12 = \$33.44	25 = 54800 = 5.48×10^4	38 = 189 = 1.89×10^2	50 = 34.4 = 3.44×10^1
13 = 315 = 3.15×10^2	26 = 135 = 1.35×10^2		

2018-2019 TMSCA Middle School Calculator Gear-Up On-Line Meet Answer Key

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$$51 = 2.27 \times 10^{-12}$$

$$52 = 11.1 \\ = 1.11 \times 10^1$$

$$53 = -2160 \\ = -2.16 \times 10^3$$

$$54 = 274000 \\ = 2.74 \times 10^5$$

$$55 = -0.0673 \\ = -6.73 \times 10^{-2}$$

$$56 = 49300 \\ = 4.93 \times 10^4$$

$$57 = 7.06 \\ = 7.06 \times 10^0$$

$$58 = 0.442 \\ = 4.42 \times 10^{-1}$$

$$59 = 4.67 \\ = 4.67 \times 10^0$$

$$60 = 3876 \text{ INT.}$$

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$$61 = 1.88 \times 10^{-7}$$

$$62 = 10400 \\ = 1.04 \times 10^4$$

$$63 = 0.0185 \\ = 1.85 \times 10^{-2}$$

$$64 = 7.38 \times 10^{-5}$$

$$65 = 110 \\ = 1.10 \times 10^2$$

$$66 = 53.7 \\ = 5.37 \times 10^1$$

$$67 = -0.831 \\ = -8.31 \times 10^{-1}$$

$$68 = -0.00154 \\ = -1.54 \times 10^{-3}$$

$$69 = 0.551 \\ = 5.51 \times 10^{-1}$$

$$70 = 2050 \\ = 2.05 \times 10^3$$

$$71 = 0.167 \\ = 1.67 \times 10^{-1}$$

$$72 = 30.3 \\ = 3.03 \times 10^1$$

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$$73 = 93900 \\ = 9.39 \times 10^4$$

$$74 = 4.00 \\ = 4.00 \times 10^0$$

$$75 = -1.00 \\ = -1.00 \times 10^0$$

$$76 = 0.228 \\ = 2.28 \times 10^{-1}$$

$$77 = 1.46 \\ = 1.46 \times 10^0$$

$$78 = 0.847 \\ = 8.47 \times 10^{-1}$$

$$79 = 29800 \\ = 2.98 \times 10^4$$

$$80 = 0.173 \\ = 1.73 \times 10^{-1}$$

TMSCA 18-19 MS CA Gear UP Test Solutions to Word and Geometry Problems

11. $\frac{1267}{41}$

12. $[20(.95) + 8(1.29) + 8(.98)].9$

13. Some calculators have a conversion key for this OR
 $\frac{7}{4}(180)$

24. $1200 + 319.56(12 \times 5)$

25. $\$500 \cdot \frac{109.50393}{\$1}$

26. $180 - \frac{360}{8}$ OR $\frac{180(8-2)}{8}$

35. $5(6^4) + 2(6^3) + 1(6^2) + 3(6) + 5$

36. Volume is $\left(\frac{1}{2}\right)^3 = \frac{1}{8}$ of the original. $\frac{267}{8}$

37. $C = 2\pi r$ $92104 = 2\pi r$
 $r = \frac{92104}{2\pi}$

38. $A = \frac{(d_1)(d_2)}{2}$
 $21741 = \frac{229.71d}{2}$
 $d = \frac{2(21741)}{229.71}$

47. On HP RPN calculator
 129.35 enter; 99.18 %CHG
 Otherwise: $\frac{99.18-129.35}{129.35}(100)$

48. $\pi^{10} + 10^\pi$

49. $\sqrt{.0199^2 + .007^2}$

50. $\text{Acos}\left(\frac{9008}{10917}\right)$

59. c = speed of canoe
 w = speed of water (current)

	Rate	Time
Downstream	$c+w$.75
Upstream	$c-w$	2.5

Rate x time = distance

$$\begin{cases} .75(c + w) = 10 \\ 2.5(c - w) = 10 \\ \{c + w = 10 \div .75\} \\ \{c - w = 10 \div 2.5\} \\ \{c + w = 10 \div .75\} \\ \{-c + w = -10 \div 2.5\} \end{cases}$$

$$2w = (10 \div .75) + (-10 \div 2.5)$$

$$w = \frac{(10 \div .75) + (-10 \div 2.5)}{2}$$

60. $\frac{n(3n-1)}{2} = \frac{51[51(3)-1]}{2}$

61. $A = \frac{h^2\sqrt{3}}{3} = \frac{.000571^2\sqrt{3}}{3}$

62. Equilateral triangle:

$$A = \frac{83.2^2\sqrt{3}}{4}$$

Right triangle: $\tan 25 = \frac{83.2}{x}$

$$x = \frac{83.2}{\tan 25}$$

$$A = \left[\left(\frac{83.2}{\tan 25}\right)83.2\right] \div 2$$

Total area =

$$\frac{83.2^2\sqrt{3}}{4} + \left[\left(\frac{83.2}{\tan 25}\right)83.2\right] \div 2$$

71. $\frac{6}{36}$

72. 5.5^2

73. Rectangle minus 3 circles
 $6(191)(2)(191) - 3\pi(191)^2$

74. A hexagon consists of 6 equilateral triangles.

$$\text{Area} = 6\left(\frac{x^2\sqrt{3}}{4}\right) = 41.569$$

$$x = \sqrt{\frac{41.569(4)}{6\sqrt{3}}}$$