8

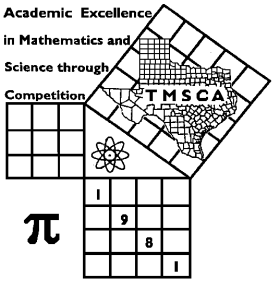
1st Score: _____	2nd Score: _____	3rd Score: _____	
S & G _____	S & G _____	S & G _____	_____. _____
Grader: _____	Grader: _____	Grader: _____	**Final Score**

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 KICK-OFF MEET©

2018-2019

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. TI-Nspire and HP Prime 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*, $1.23x10^{0}$*, $1.23x10^{1}$, $1.23x10^{01}$, .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.

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1. –917 + 1340 ---------- 1=_____

2. 52 + 62 – 60 ---------- 2=_____

3. 2620 – 1820 + 3140 ---------- 3=_____

4. 27 + 34 + 37 + 41 ---------- 4=_____

5. –2490 + 2000 + 1110 + 2100 ---------- 5=_____

6. 203 – 117 – 148 – 172 + 188 ---------- 6=_____

7. π + 4.1 + 2.24 + 5.27 + 2.34 ---------- 7=_____

8. (1.15 – 5.36) + (3.73 – 4.97 – π) ---------- 8=_____

9. 214 x 758 x 62.2 ---------- 9=_____

10. 479 x 236 x 96.6 x 303 ----------10=_____

11. Calculate two percent of five-sixteenths of one billion. ----------11=_____

12. Calculate the length of one side of a regular septagon in feet with a perimeter of 248 inches. ----------12=_____ft.

13. Randy has been to eight middle school meets and competed in Calculator each time. He has scored 332, 364, 291, 309, 249, and 3 times he scored a 373. Calculate his mean score for the 8 tests. 13=_____INT

14. $(159/233)[51 - 208]$ ----------14=_____

15. $(108)[146 \times 92/160]$ ----------15=_____

16. $\left[\frac{661}{202}\right][(766/391) - 1.23]$ ----------16=_____

17. $\{61/90\}\left[\frac{40}{125 + 100}\right]$ ----------17=_____

18. $\frac{[0.0694/(0.0736)]/0.151}{(4.45 \times 5.63)(8.1)}$ ----------18=_____

19. $\left[\frac{(1660/3510) - (1760/3290)}{2.84/(0.606)}\right]$ ----------19=_____

20. $\frac{1.22\text{x}10^{-4} + 1.37\text{x}10^{-4} + 1.37\text{x}10^{-4}}{(0.013)(21.2)(0.00676)}$ ----------20=_____

21. $(0.0171)[178/124 \times 296/156] - 0.0289$ ----------21=_____

22. $\frac{[-(805 + 981)(1050 - 1430)]}{(0.0022/(1.86))}$ ----------22=_____

23. $\frac{(200 + 464 - 1090)}{\{(1290 - 1020)/(0.0813)\}}$ ----------23=_____

24. Amanda has scored 48 points in the first 3 games of the season. At this rate, calculate the number of points she will score in a 14 game season. ----------24=_____INT.

25. Twelve times a number decreased by five is three hundred two. Calculate the value of the number. ----------25=_____

26. Calculate the number of meters in 2.5 miles. ----------26=_____mi.

27. $\dfrac{(0.0173 + 0.0296)(56.5 + 68.8)}{(2.82\text{x}10^{12})}$ ----------27=_____

28. $\dfrac{(2.91\text{x}10^{12}) + (2.06\text{x}10^{12})}{(-0.0279)(0.133) - 0.00323}$ ----------28=_____

29. $[995 - (1870 + 1990)] + [(-0.876)(1150 - 391)]$ ---------29=_____

30. $\dfrac{1}{-46.5} + \dfrac{1}{(\pi)(34.3 - 61.7)}$ ----------30=_____

31. $(0.485)\left[\dfrac{269}{(1.01\text{x}10^{8})}\right]$ ----------31=_____

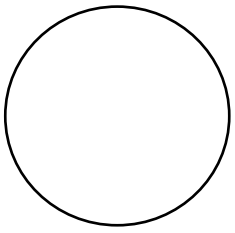
32. $\dfrac{(0.00684 + 0.00178)}{(2.39\text{x}10^{12})}$ ----------32=_____

33. $\left[\dfrac{1/404}{1/496}\right][9.40\text{x}10^{5}]$ ----------33=_____

34. $1/(0.0433 - 0.0402) - 1/(3.84\text{x}10^{-4})$ ----------34=_____

35. Ariana is going to KU in Lawrence, Kansas. She is going to drive home to Denton, Texas, 480 miles away. She wants to make the trip in 6.5 hours. Calculate what her average speed needs to be to drive straight through. ----------35=_____mph.

36. Calculate the opposite of the multiplicative inverse of three and four-sevenths. ----------36=_____

CIRCLE	RECTANGLE
Diameter = 57.82  Area = ? 37=_____	 66.4 Perimeter = 299.2 X X = ? 38=_____

39. $\dfrac{(18700 + 31900)^3}{(0.00661 - 0.00805)^2}$ ----------39=_____

40. $(0.352 + 0.25 + 0.0712)^2(943 + 306)^2$ ----------40=_____

41. $\sqrt[3]{\dfrac{27.8 + 77.8}{156 - 81.8}}$ ----------41=_____

42. $(1/(0.0134))(66300 - 44700)^3$ ----------42=_____

43. $\sqrt{(47.5/71.4) + 0.596 - 0.395}$ ----------43=_____

44. $\sqrt{8320 - 2150 + 6980} - \sqrt{8880}$ ----------44=_____

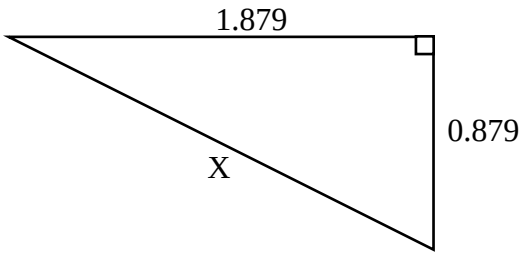
45. $\dfrac{(1970 + 338)^{1/2}}{(1620 - 1230)^{1/3}}$ ----------45=_____

46. $\sqrt[4]{0.625 - 66.2/180} + 1/\sqrt{127 + 61.3}$ ----------46=_____

47. The price of gold on January 3, 2000 was $288.50 per ounce. On January 3, 2018 it was $1312.92 per ounce. Calculate the percent increase in price from 2000 to 2018. ----------47=_____%

48. A spinner is divided into nine equal sections numbered 1 through 9. When the pointer is spun, calculate the probability it will land on a composite number. ----------48=_____

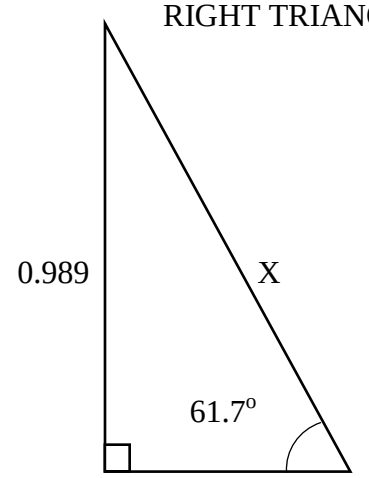
RIGHT TRIANGLE



X = ?

49=_____

RIGHT TRIANGLE



X = ?

50=_____

51. $\left[\dfrac{12300 + 3200 + \sqrt{6.45\text{x}10^{7} + 1.97\text{x}10^{8}}}{56.3/125}\right]^{2}$ ----------51=_____

52. $\dfrac{(280 + 432 - 85.1)^{2}}{\sqrt{0.227 + 1.24 + 0.459}}$ ----------52=_____

53. $\left[\dfrac{\sqrt{\sqrt{25.2 - 8.7}}}{-(0.551 - 0.389)}\right]^{2}[1.03\text{x}10^{5} + 78200]$ ----------53=_____

54. $\sqrt{\dfrac{(96900)(37000)}{(6400)(82700)}} - 2.49 + 1.97$ ----------54=_____

55. $173 + \sqrt{(364)(1040)} - (176 + 831)$ ----------55=_____

56. $0.471 + \sqrt{(1280)/(3030)} - (0.763 + 0.66)^{2}$ ----------56=_____

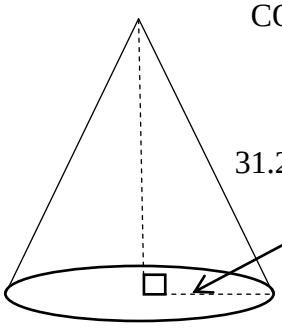
57. (rad) cos(157) + (157/165) ----------57=_____

58. $\sqrt{\dfrac{(795)(4.89)}{(3.71) + (13.1)}} + 1/(1.98)^{-4}$ ----------58=_____

59. Four-ninths of a number decreased by twenty is seven less than three times the number. Calculate the number. ----------59=_____

60. Calculate 546^{901} . ----------60=_____

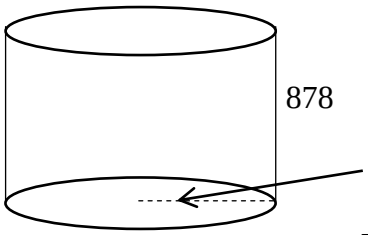
CONE



Total Surface Area = ?

61=_____

CYLINDER



Volume = ?

62=_____

63. $\frac{3!}{12!}$ ----------63=_____

64. $(4.52\text{x}10^{7} - 9.99\text{x}10^{7})^{-7}(6.08\text{x}10^{7})$ ----------64=_____

65. $(42.6 - \pi)e^{0.76}$ ----------65=_____

66. (deg) [377]tan(430° – 200°) ----------66=_____

67. (deg) sin(3.06° – 3.46°) + 0.00503 ----------67=_____

68. (rad) cos[(4.27 – 2.53)(1.1)] ----------68=_____

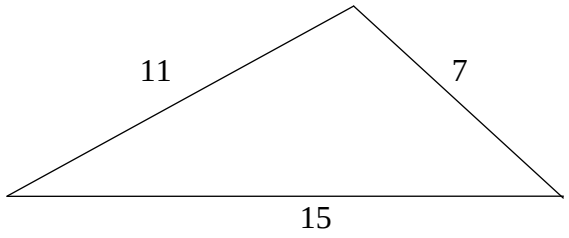
69. (rad) (17500)cos(140) ----------69=_____

70. $(13.1 + 19.5 + 37.8)^{4/5}$ ----------70=_____

71. Brianna has a bag of marbles with 7 green, 5 red, 9 blue, and 11 yellow. If she reaches into the bag and pulls out a marble without looking, calculate the probability that it will not be blue. ----------71=_____

72. The tires on your truck have an outside diameter of 25 inches. Calculate how far in feet the wheel will travel in 7 revolutions. ----72=_____ft.

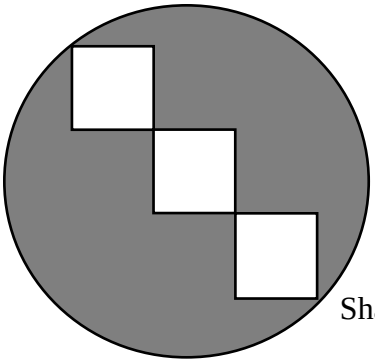
SCALENE TRIANGLE



Area = ?

73=_____

CIRCLE AND CONGRUENT SQUARES



Radius = 22.5

Shaded Area = ?

74=_____

75. $\dfrac{1.77 + \sqrt{(6.74)(3.11)} + (0.793)(3.38)}{\sqrt{\sqrt{0.0712 + 0.0532}}}$ ----------75=_____

76. $\text{Ln}\left[\dfrac{382 + 393 + 319}{548 + 466 - 69.5}\right]$ ----------76=_____

77. $(30800)10^{(0.521)(6.59)}$ ----------77=_____

78. $(43)^{\pi}(2.4)^{4}(0.177 - 0.0983)^{5}$ ----------78=_____

79. $1 + 3 + 5 + \ldots + 459$ ----------79=_____

80. $(0.4) - \dfrac{(0.4)^2}{2} + \dfrac{(0.4)^3}{3} - \dfrac{(0.4)^4}{4}$ ----------80=_____

2018-2019 TMSCA Middle School Calculator Kick-Off On-Line Meet Answer Key

Page 1

1 = 423
= 4.23×10^{2}

2 = 54.0
= 5.40×10^{1}

3 = 3940
= 3.94×10^{3}

4 = 139
= 1.39×10^{2}

5 = 2720
= 2.72×10^{3}

6 = -46.0
= -4.60×10^{1}

7 = 17.1
= 1.71×10^{1}

8 = -8.59
= -8.59×10^{0}

9 = 1.01×10^{7}

10 = 3.31×10^{9}

11 = 6250000
= 6.25×10^{6}

12 = 2.95
= 2.95×10^{0}

13 = 333 INT.

Page2

14 = -107
= -1.07×10^{2}

15 = 9070
= 9.07×10^{3}

16 = 2.39
= 2.39×10^{0}

17 = 0.120
= 1.20×10^{-1}

18 = 0.0308
= 3.08×10^{-2}

19 = -0.0132
= -1.32×10^{-2}

20 = 0.213
= 2.13×10^{-1}

21 = 0.0177
= 1.77×10^{-2}

22 = 5.74×10^{8}

23 = -0.128
= -1.28×10^{-1}

24 = 224 INT.

25 = 25.6
= 2.56×10^{1}

26 = 4020
= 4.02×10^{3}

Page 3

27 = 2.08×10^{-12}

28 = -7.16×10^{14}

29 = -3530
= -3.53×10^{3}

30 = -0.0331
= -3.31×10^{-2}

31 = 1.29×10^{-6}

32 = 3.61×10^{-15}

33 = 1.15×10^{6}

34 = -2280
= -2.28×10^{3}

35 = 73.8
= 7.38×10^{1}

36 = -0.280
= -2.80×10^{-1}

37 = 2630
= 2.63×10^{3}

38 = 83.2
= 8.32×10^{1}

Page 4

39 = 6.25×10^{19}

40 = 707000
= 7.07×10^{5}

41 = 1.12
= 1.12×10^{0}

42 = 7.52×10^{14}

43 = 0.931
= 9.31×10^{-1}

44 = 20.4
= 2.04×10^{1}

45 = 6.58
= 6.58×10^{0}

46 = 0.785
= 7.85×10^{-1}

47 = 355
= 3.55×10^{2}

48 = 0.444
= 4.44×10^{-1}

49 = 2.07
= 2.07×10^{0}

50 = 1.12
= 1.12×10^{0}

2018-2019 TMSCA Middle School Calculator Kick-Off On-Line Meet Answer Key

Page 5

51 = 4.94×10^{9}

52 = 283000
= 2.83×10^{5}

53 = 2.80×10^{7}

54 = 2.08
= 2.08×10^{0}

55 = -219
= -2.19×10^{2}

56 = -0.904
= -9.04×10^{-1}

57 = 1.95
= 1.95×10^{0}

58 = 30.6
= 3.06×10^{1}

59 = -5.09
= -5.09×10^{0}

60 = 1.62×10^{2466}

Page 6

61 = 1730
= 1.73×10^{3}

62 = 8.10×10^{8}

63 = 1.25×10^{-8}

64 = -4.15×10^{-47}

65 = 84.4
= 8.44×10^{1}

66 = 449
= 4.49×10^{2}

67 = -0.00195
= -1.95×10^{-3}

68 = -0.337
= -3.37×10^{-1}

69 = -3460
= -3.46×10^{3}

70 = 30.1
= 3.01×10^{1}

71 = 0.719
= 7.19×10^{-1}

72 = 45.8
= 4.58×10^{1}

Page 7

73 = 36.0
= 3.60×10^{1}

74 = 1250
= 1.25×10^{3}

75 = 15.2
= 1.52×10^{1}

76 = 0.147
= 1.47×10^{-1}

77 = 8.35×10^{7}

78 = 13.6
= 1.36×10^{1}

79 = 52900
= 5.29×10^{4}

80 = 0.335
= 3.35×10^{-1}

11. $.02\left(\frac{5}{16}\right)(1{,}000{,}000{,}000)$

12. $\frac{248}{12} \div 7$

13. $\frac{322+364+291+309+249+3(373)}{8}$

24. $\frac{48}{3} = \frac{x}{14}$ so $x = \frac{48(14)}{3}$

25. $12n - 5 = 302$

$n = \frac{302+5}{12}$

26. Your calculator may have a conversion key to change miles to km. Then multiply by 1000. Some of you may know that 1 mile ≈ 1.61 km.

$$2.5mi\left(\frac{1.61km}{1\,mi}\right)\left(\frac{1000m}{1\,km}\right)$$

$$2.5(1.61)(1000)$$

35. $d = rt \;\; so\; r = \frac{d}{t} = \frac{480}{6.5}$

36. $-\frac{\mathbf{1}}{\mathbf{3\frac{4}{7}}}$

37. $A = \pi r^2 = \pi\left(\frac{57.82}{2}\right)^2$

38. $\frac{299.2-66.4(2)}{2}$

47. With the HP RPN calculator: 288.5 (enter) 1312.92 (%chg).
Without the HP calculator:

$$\left(\frac{1312.92 - 288.5}{288.5}\right)(100)$$

48. The composite numbers are 4,6,8,9. $\frac{4}{9}$
Note: "1" is neither prime nor composite.

49. $\sqrt{1.879^2 + .879^2}$

50. $\sin 61.7 = \frac{.989}{x}$

$$x = \frac{.989}{sin\ 61.7}$$

59. $\frac{4}{9}n - 20 = 3n - 7$

$$-20 + 7 = 3n - \frac{4}{9}n$$

$$-13 = 2\frac{5}{9}n \;\; so\; n = \frac{-13}{2\frac{5}{9}}$$

60. **546^{901}** 901 [ENTER]
546 [LOG] [x] [SHOW]

(Look at the digits to the left of the decimal. This gives 2466 for the exponent. Write down 2466.) Punch

2466 [−] [10^x]

(This gives 1.62 E0 which is the first part of your answer.

The answer is 1.62 x 10^{2466}). This is done on the HP RPN calculator.

61.
$Surface\ area\ of\ cone = \pi rl + \pi r^2 =$
$\pi(12.6)(31.2) + \pi(12.6)^2$

62. V =
$\pi r^2 h = \pi(542)^2(878)$

71. $\frac{7+5+11}{7+5+11+9} = \frac{23}{32}$

72. Circumference times 7

$$\frac{25}{12}\pi(7)$$

73. Area of a scalene triangle
$\sqrt{s(s-a)(s-b)(s-c)}$
Where s = semi-perimeter and a,b,c are the sides.

$$s = \frac{11 + 7 + 15}{2} = 16.5$$

$$\begin{cases} s - a = 16.5 - 11 = 5.5 \\ s - b = 16.5 - 7 = 9.5 \\ s - c = 16.5 - 15 = 1.5 \end{cases}$$

A = $\sqrt{16.5(5.5)(9.5)(1.5)}$

74. $A = \pi r^2 - 3\left(\frac{\text{diagonal}^2}{2}\right)$
The area of a square can be $\frac{diagonal^2}{2}$. Each diagonal is $\frac{1}{3}$ of the diameter. Each diagonal is $\frac{22.5\ x\ 2}{3} = 15$

$$\pi(22.5)^2 - 3[15^2 \div 2]$$