8

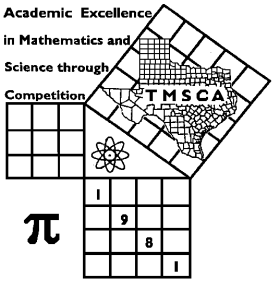
1st Score: _____	2nd Score: _____	3rd Score: _____	
S & G _____	S & G _____	S & G _____	_____. _____
Grader: _____	Grader: _____	Grader: _____	**Final Score**

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©

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, $1.23(10)^{2}$, $1.23\cdot10^{2}$, $1.230x10^{2}$, $1.23*10^{2}$, 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. 311 + 1510 ---------- 1=_____

2. 51 + 29 – 38 ---------- 2=_____

3. 798 – 1210 + 985 ---------- 3=_____

4. 17 – π – 16 – 12 ---------- 4=_____

5. –41 + 63 + 48 + 85 ---------- 5=_____

6. –172 + 134 – 63.3 – 23.9 + 96 ---------- 6=_____

7. 1.24 – 5.52 + 3.51 – π – 5.1 ---------- 7=_____

8. 6.23 + 6.51 – 4.51 + 6.63 + 5.82 ---------- 8=_____

9. 320 x 98.1 x 321 ---------- 9=_____

10. 304 x 273 x 479 x 1540 ---------- 10=_____

11. Calculate the arithmetic mean of the first ten prime numbers. --- 11=_____

12. Calculate the area of a square with side length of 5.83 feet. ----- 12=_____ $ft.^2$

13. Convert twenty-one customary tons to kilograms. ---------- 13=_____kg

14. (117/566)[590 – 763] ---------- 14=_____

15. (629)[444 x 413/431] ---------- 15=_____

16. (–240 + 132)[155 – 188 – 173] ---------- 16=_____

17. $\{42/76\}\left[\frac{55}{53 + 84}\right]$ ---------- 17=_____

18. $\left[\frac{(0.00167 + 0.00131)}{25/112}\right]\left[\frac{0.00208}{72.4}\right]$ ---------- 18=_____

19. $\left[\frac{(7840/7190) - (6610/6920)}{14.3/47.5}\right]$ ---------- 19=_____

20. $\frac{4.97x10^{-4} + 8.27x10^{-4} + 5.16x10^{-4}}{(34.7)(8.30x10^{-4})(0.00337)}$ ---------- 20=_____

21. $\frac{(0.068)(2.47x10^{-4})}{3720}(6.86 - 4.4)$ ---------- 21=_____

22. $\frac{[-(3310 + 8240)(3550 - 8150)]}{(54.1/(3.90x10^{5}))}$ ---------- 22=_____

23. $\frac{(3090 \times 5030)/5430}{(1280 \times 1960) + 1.90x10^{6}}$ ---------- 23=_____

24. Adrian completed all problems to and including #49 on his TMSCA calculator test. If he did not miss any that he completed, calculate his score. ---------- 24=_____INT.

25. Calculate the cost of a $79.49 item if it is discounted by 20%. --- 25=$_____

26. The ratio of cars to motorcycles is 50 to 12. If there are a total of 7,502 vehicles, calculate how many are motorcycles. ---------- 26=_____INT.

27. $\dfrac{(29.3 - 6.24)(405 + 713)}{(7.08\text{x}10^{11})}$ ---------- 27=_____

28. $\dfrac{(0.0549 + 0.0439)(0.0129 + 0.00289)}{(6.97\text{x}10^{11})}$ ---------- 28=_____

29. $(0.00457)\left[(18.1/8.61)(0.0185/0.0132)\right]$ ---------- 29=_____

30. $\dfrac{1}{-7.71} + \dfrac{1}{(54.3 - 59.6)}$ ---------- 30=_____

31. $\dfrac{(0.0856 + 0.0768)}{(2.51\text{x}10^{11})}$ ---------- 31=_____

32. $[0.322]\left[\dfrac{1/0.212}{1/0.13}\right]$ ---------- 32=_____

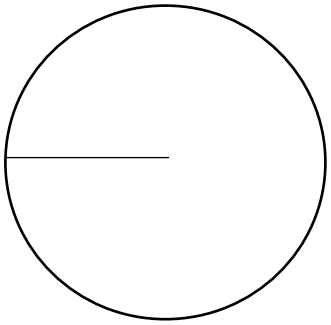
33. $\dfrac{1}{123} - \dfrac{1}{(94.9 + 125)}$ ---------- 33=_____

34. $\left[\dfrac{1/92.1}{1/76.8}\right][1.75\text{x}10^{6}]$ ---------- 34=_____

35. A circle and a square have the same area. The radius of the circle is 8.25 inches. Calculate the measure of a side of the square in inches. ---------- 35=_____in.

36. Roland made a sequence, 1/1, ¼, 1/16, 1/64 … Calculate the of the 12th term. ---------- 36=_____

CIRCLE



Radius = 0.6291

Area = ?

37=_____

RECTANGLE

Area = 3006

Width = ?

38=_____

39. $(514 + 109)^2(28.3 + 49.7)^2$ ---------- 39=_____

40. $\dfrac{(21200 + 36200)^3}{(0.0803 - 0.0642)^2}$ ---------- 40=_____

41. $(152 + 608 + 667)^2(3380 + 3210)^2$ ---------- 41=_____

42. $(1220)\sqrt{577 + 2010 + 1040}$ ---------- 42=_____

43. $\sqrt{50.8} + \sqrt{25.6 + 23} - (\pi)\sqrt{30}$ ---------- 43=_____

44. $\sqrt{551 - 131 + 382} - \sqrt{235}$ ---------- 44=_____

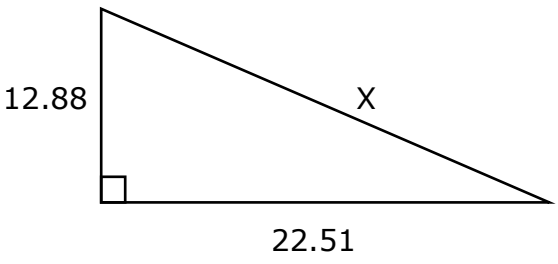
45. $\sqrt[4]{3.89 - 516/399} + 1/\sqrt{0.02 + 0.00847}$ ---------- 45=_____

46. $\dfrac{(518 + 130)^{1/2}}{(4820 - 2390)^{1/3}}$ ---------- 46=_____

47. Calculate the amount of simple interest earned on \$1275 at 3 1/8% for 1 year. ---------- 47=\$_____

48. The angles in a triangle are in the ratio of 6:13:28. Calculate the measure of the largest angle in degrees. ---------- 48=_____°

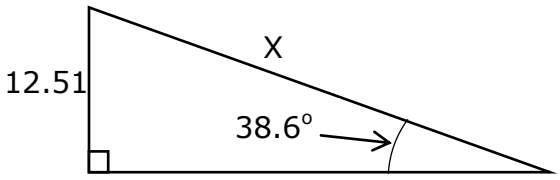
RIGHT TRIANGLE



X = ?

49=_____

RIGHT TRIAGLE



X = ?

50=_____

51. $\left[\frac{\sqrt{\sqrt{2.45 - 1.08}}}{-(0.22 - 0.15)}\right]^3 [535 + 384]$ ---------- 51=_____

52. $\left[\frac{236 + 1110 + \sqrt{6.20x10^5 + 1.24x10^6}}{5660/26600}\right]^2$ ---------- 52=_____

53. $\left[\frac{8.31 - 4.48 + \sqrt{39.6/9.75}}{-1530 + 3100}\right]^{-3}$ ---------- 53=_____

54. $\sqrt{\frac{1/(12.8 - 12.3)}{(104)(19.4 + 9.72)^6}}$ ---------- 54=_____

55. $\sqrt{\frac{(39000)(44200)}{(40700)(14800)}} - 0.368 + 1.68$ ---------- 55=_____

56. $0.634 + \sqrt{(110)/(134)} - (0.909 + 0.279)^2$ ---------- 56=_____

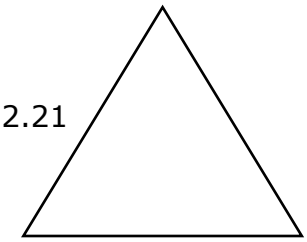
57. (rad) sin(128) + (818/98.5) ---------- 57=_____

58. (deg) sin(649°) + (66.6/55.6) ---------- 58=_____

59. The product of a number and 7 increased by 32 is 28. Calculate the value of the number. ---------- 59=_____

60. Calculate the probability of drawing a spade from a standard deck of cards. ---------- 60=_____

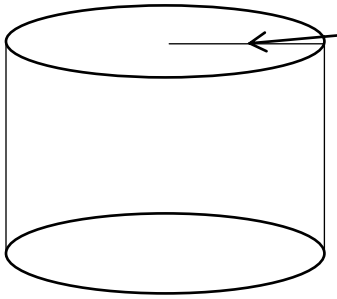
EQUILATERAL TRIANGLE



Area = ?

61=_____

CYLINDER



Surface Area = ?

62=_____

63. $\frac{33!/27!}{5! + 8!}$ ---------- 63=_____

64. (deg) (1.05 + 1.98)tan(10.9°) ---------- 64=_____

65. $(3.90\text{x}10^{6} - 2.19\text{x}10^{7})^{-10}(2.72\text{x}10^{5})$ ---------- 65=_____

66. (deg) (374 – 603)sin(2.96°) + 11.4 ---------- 66=_____

67. (rad) $\tan\left[\frac{(3.71)(\pi)}{(0.988)(284)}\right]$ ---------- 67=_____

68. (rad) (1.06)cos(6.24) ---------- 68=_____

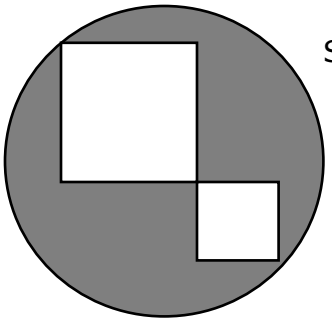
69. (deg) $\frac{\sin(146°) - \tan(146°)}{\sin(146°)}$ ---------- 69=_____

70. $\left[(13.3)\left(\frac{438}{(2660)(\pi)}\right)\right]^{1/2}$ ---------- 70=_____

71. Calculate the slope of the line that passes through the points (8,2) and (-3,1). ---------- 71=_____

72. Calculate the discriminant of the following quadratic equation.
$7x^2 - 3x + 15=0$ ---------- 72=_____

CIRCLE AND SQUARES



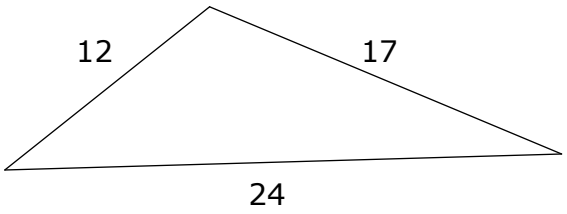
Side of large square = 20.10

Side of small square = 10.05

Shaded Area = ?

73=_____

SCALENE TRIANGLE



Area = ?

74=_____

75. $\frac{\text{Log}(0.835 + 1.97)}{177 - 152}$ ---------- 75=_____

76. $\frac{\text{Log}(5.13\text{x}10^{6} + 6.39\text{x}10^{6})}{12.4}$ ---------- 76=_____

77. $\text{Log}(1000 + 374 + 603)$ ---------- 77=_____

78. $\text{Ln}\left[\frac{428 + 223 + 134}{51.3 - 19.8 - 27}\right]$ ---------- 78=_____

79. $1 + 3 + 5 + \ldots + 493$ ---------- 79=_____

80. $1 + 0.32 + (0.32)^{2} + \frac{(0.32)^{4}}{8} - \frac{(0.32)^{5}}{15}$ ---------- 80=_____

2017-2018 TMSCA Middle School Calculator Kick-Off On-Line Meet Answer Key

Page 1

1 = 1820
= 1.82×10^{3}

2 = 42.0
= 4.20×10^{1}

3 = 573
= 5.73×10^{2}

4 = -14.1
= -1.41×10^{1}

5 = 155
= 1.55×10^{2}

6 = -29.2
= -2.92×10^{1}

7 = -9.01
= -9.01×10^{0}

8 = 20.7
= 2.07×10^{1}

9 = 1.01×10^{7}

10 = 6.12×10^{10}

11 = 12.9
= 1.29×10^{1}

12 = 34.0
= 3.40×10^{1}

13 = 19100
= 1.91×10^{4}

Page 2

14 = -35.8
= -3.58×10^{1}

15 = 268000
= 2.68×10^{5}

16 = 22200
= 2.22×10^{4}

17 = 0.222
= 2.22×10^{-1}

18 = 3.84×10^{-7}

19 = 0.449
= 4.49×10^{-1}

20 = 19.0
= 1.90×10^{1}

21 = 1.11×10^{-8}

22 = 3.83×10^{11}

23 = 0.000649
= 6.49×10^{-4}

24 = 245 INT.

25 = $63.59

26 = 1452 INT.

Page 3

27 = 3.64×10^{-8}

28 = 2.24×10^{-15}

29 = 0.0135
= 1.35×10^{-2}

30 = -0.318
= -3.18×10^{-1}

31 = 6.47×10^{-13}

32 = 0.197
= 1.97×10^{-1}

33 = 0.00358
= 3.58×10^{-3}

34 = 1.46×10^{6}

35 = 14.6
= 1.46×10^{1}

36 = 2.38×10^{-7}

37 = 1.24
= 1.24×10^{0}

38 = 37.7
= 3.77×10^{1}

Page 4

39 = 2.36×10^{9}

40 = 7.30×10^{17}

41 = 8.84×10^{13}

42 = 73500
= 7.35×10^{4}

43 = -3.11
= -3.11×10^{0}

44 = 13.0
= 1.30×10^{1}

45 = 7.20
= 7.20×10^{0}

46 = 1.89
= 1.89×10^{0}

47 = $39.84

48 = 107
= 1.07×10^{2}

49 = 25.9
= 2.59×10^{1}

50 = 20.1
= 2.01×10^{1}

2017-2018 TMSCA Middle School Calculator Kick-Off On-Line Meet Answer Key

Page 5

51 = -3.39×10^{6}

52 = 1.62×10^{8}

53 = 1.94×10^{7}

54 = 5.62×10^{-6}

55 = 3.00
= 3.00×10^{0}

56 = 0.129
= 1.29×10^{-1}

57 = 9.03
= 9.03×10^{0}

58 = 0.252
= 2.52×10^{-1}

59 = - 0.571
= $- 5.71 \times 10^{-1}$

60 = 0.250
= 2.50×10^{-1}

Page 6

61 = 2.11
= 2.11×10^{0}

62 = 1.01×10^{7}

63 = 19700
= 1.97×10^{4}

64 = 0.583
= 5.83×10^{-1}

65 = 7.62×10^{-68}

66 = -0.425
= -4.25×10^{-1}

67 = 0.0416
= 4.16×10^{-2}

68 = 1.06
= 1.06×10^{0}

69 = 2.21
= 2.21×10^{0}

70 = 0.835
= 8.35×10^{-1}

71 = 0.0909
= 9.09×10^{-2}

72 = - 411
= $- 4.11 \times 10^{2}$

Page 7

73 = 923
= 9.23×10^{2}

74 = 95.5
= 9.55×10^{1}

75 = 0.0179
= 1.79×10^{-2}

76 = 0.569
= 5.69×10^{-1}

77 = 3.30
= 3.30×10^{0}

78 = 5.16
= 5.16×10^{0}

79 = 61000
= 6.10×10^{4}

80 = 1.42
= 1.42×10^{0}