

2016-2017 TMSCA Middle School Calculator Test 1

1. $1610 + 643$ ----- 1= _____

2. $8.5 + 5.7 + 3.5$ ----- 2= _____

3. $6650 - 6240 - 5780$ ----- 3= _____

4. $11 - 18 - 17 + 14$ ----- 4= _____

5. $1700 - 2940 + 607 - 2000$ ----- 5= _____

6. $104 - 87.2 - 144 - 53.9 + 122$ ----- 6= _____

7. $0.473 + 1.27 + 0.273 + 0.801 + 0.644$ ----- 7= _____

8. $-1.22 - 1.25 + \pi - 0.601 - 1.66$ ----- 8= _____

9. $412 \times 108 \times 142$ ----- 9= _____

10. $35.9 \times 202 \times 1490 \times 2230$ ----- 10= _____

11. Sandy went out to dinner with a friend and their meals cost a total of \$45.22. Calculate the amount they paid if they also included a 15% tip. ----- 11=\$ _____

12. A room measures 25 feet by 31 feet. Calculate the number of square yards of tile needed to cover the floor of the room. ----- 12= _____ sq. yds.

13. The average of 5 numbers is 122.8. The first four numbers are 154.8, 100.9, 98.3, and 111.1. Calculate the value of the fifth number. ----- 13= _____

14. $(561/224)[389 - 444]$ -----14= _____

15. $(235)[577 \times 295/622]$ -----15= _____

16. $(323 + 524)[496 - 495 - 327]$ -----16= _____

17. $\left[\frac{-486}{178}\right] [(273/256) + 0.932]$ -----17= _____

18. $\frac{(123/142) + (103/87)}{(0.0458 - 0.0171)}$ -----18= _____

19. $\left[\frac{40/118}{95/171}\right] \{0.0124 + 0.0042 - 0.00133\}$ -----19= _____

20. $\frac{(20.9)(1.06 \times 10^{-4})}{0.591} (1.96 \times 10^{-4} - 2.69 \times 10^{-4})$ -----20= _____

21. $\frac{885}{(425 - 509)} - \frac{(568 - 261)}{459}$ -----21= _____

22. $\frac{(3540 \times 3060)/2370}{(2540 \times 6980) + 6.60 \times 10^6}$ -----22= _____

23. $\frac{(\pi)(266/328)(193/178)}{(201/112)}$ -----23= _____

24. If Maria multiplies her age by four and adds thirty-two she gets one hundred. Calculate her age. -----24= _____ INT.

25. What percent of the month of July is 20 minutes? -----25= _____ %

26. Mitch earns \$12.75 per hour working part time. He works four hours on Friday, 5 hours 20 minutes on Saturday and 3 ¼ hours on Sunday. Calculate his gross pay for the three days. -----26=\$ _____

27. $[937 - (1040 + 940)] + [(0.787)(1080 - 2110)]$ -----27= _____

28. $(0.433) \left[(1.26/3.82)(5.30 \times 10^{-4} / 8.72 \times 10^{-4}) \right]$ -----28= _____

29. $\frac{(3.68 \times 10^{11}) + (3.08 \times 10^{11})}{(-34.6)(40.2) - 267}$ -----29= _____

30. $\frac{1}{19.6} + \frac{1}{(\pi)(64.2 - 30.7)}$ -----30= _____

31. $\frac{(53.7 + 25.2)}{(4.44 \times 10^{12})}$ -----31= _____

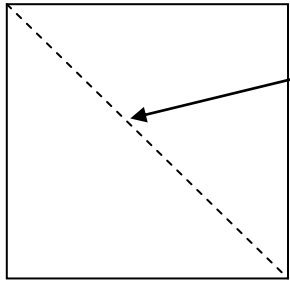
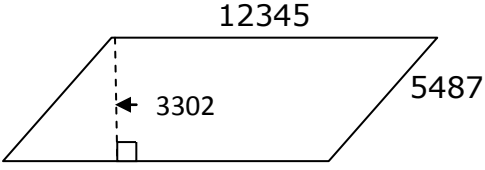
32. $(31.6) \left[\frac{21.9}{(6.89 \times 10^{11})} \right]$ -----32= _____

33. $1/(8.79 \times 10^{-4} - 0.00263) - 1/(-0.00158)$ -----33= _____

34. $\left[\frac{1/189}{1/321} \right] + [0.925]$ -----34= _____

35. Tanya wanted to figure out the height of the tree in the back yard. She is 4 feet 8 inches tall and casts a 3 foot shadow. The tree casts a 5 foot 3 inch shadow at the same time. Calculate the height of the tree. -----35= _____ ft.

36. The world record for the 100-yard dash is 9.1 seconds. Calculate this speed in miles per hour. -----36= _____ mph

<p style="text-align: center;">Square</p>  <p style="text-align: right;">Area = ?</p> <p>37= _____</p>	<p style="text-align: center;">Parallelogram</p>  <p style="text-align: right;">Area = ?</p> <p>38= _____</p>
---	---

39. $\left[\frac{2240 + (1/(4.04 \times 10^{-4}))}{(2250/4400) - 0.233} \right]^2$ -----39= _____

40. $\sqrt[3]{\frac{10.7 + 4.51}{1.56 - 0.515}}$ -----40= _____

41. $\left[\frac{0.266}{0.857} \right] (2670 + 2230)^4$ -----41= _____

42. $(1/\pi) \sqrt{\frac{0.293 + 0.18}{1.21 - 0.58}}$ -----42= _____

43. $(1/(0.00333))(45000 - 35200)^3$ -----43= _____

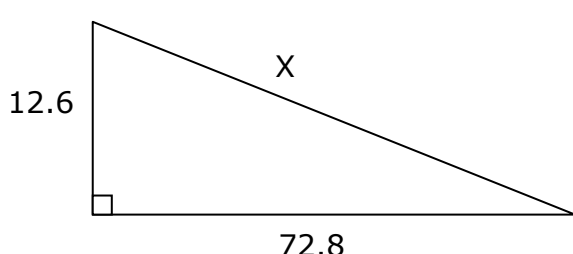
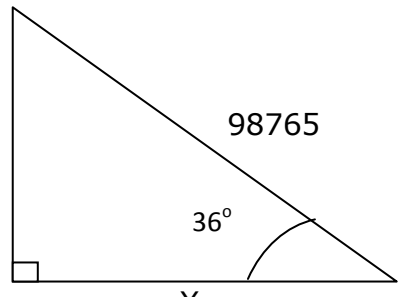
44. $\sqrt{(267/77.8) + 2.88 - 2.63}$ -----44= _____

45. $(73800) \sqrt{15800 + 46500 - 29400}$ -----45= _____

46. $\frac{(16400 + 25500)^{1/3}}{(65.1 - 61.9)^{1/3}}$ -----46= _____

47. A twenty foot cable is cut into two pieces. One of the lengths is 43 inches longer than the other. Calculate the length of the shorter section of cable. -----47= _____ ft.

48. A rectangle measures 87 feet by 37 feet. Calculate the radius of a circle that has the same area as the rectangle. -----48= _____ sq. ft.

<p style="text-align: center;">Right Triangle</p>  <p style="text-align: center;">X = ?</p> <p>49= _____</p>	<p style="text-align: center;">Right Triangle</p>  <p style="text-align: center;">X = ?</p> <p>50= _____</p>
---	--

51. $\left[\frac{\sqrt{\sqrt{22.9 - 22.8}}}{-(0.352 - 1.34)} \right]^3 [2.77 \times 10^5 + 5.46 \times 10^5]$ -----51=_____

52. $\frac{(84.5 + 49.5 - 58.8)^4}{\sqrt{3630 + 748 + 2040}}$ -----52=_____

53. $\sqrt{\frac{0.0579}{(2820)(78500)} + \frac{(1.38 - 1.33)}{(2360 + 856)}}$ -----53=_____

54. $(6.54)^2 \sqrt{(7.49)/(34.3)} - (9.09 + 14.5)$ -----54=_____

55. $(145)(9.71 \times 10^7)^{1/4} - [(8.35 \times 10^7)(2.62 \times 10^8)]^{1/4}$ -----55=_____

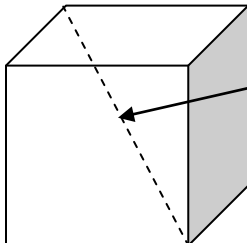
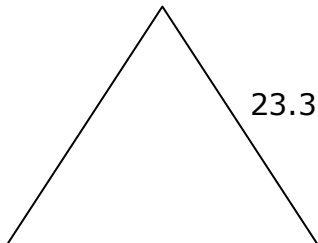
56. $\sqrt{\frac{(1.81 \times 10^5)(29200)}{(18300)(12400)}} - 3.65 + 3.81$ -----56=_____

57. $\sqrt{\frac{1/(65.9 - 19.4)}{(446)(2300 + 1330)^2}}$ -----57=_____

58. $\sqrt{\frac{(4.14)(600)}{(557) + (815)}} - 2.19$ -----58=_____

59. Diane deposited \$12,000 in the bank and left it there for 3 years at 3 1/8% simple interest. Calculate the amount of interest made in those three years. -----59=\$_____

60. Twenty-two members of the Math/Science Association met for a meeting. If every member shook hands with every other member once, calculate the number of handshakes at the meeting. -----60=_____ INT.

<p style="text-align: center;">Cube</p>  <p style="text-align: right;">Surface Area = ?</p> <p>61= _____</p>	<p style="text-align: center;">Equilateral Triangle</p>  <p style="text-align: right;">Area = ?</p> <p>62= _____</p>
---	--

63. $\frac{15! + 17!}{12!}$ -----63= _____

64. (deg) $(220 + 211)\sin(34.1^\circ)$ -----64= _____

65. $(48.2 - \pi)e^{0.115}$ -----65= _____

66. (deg) $\tan(266^\circ - 288^\circ) + 0.333$ -----66= _____

67. (rad) $\frac{\sin(98.1)}{85.8/230}$ -----67= _____

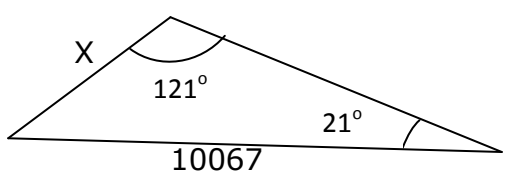
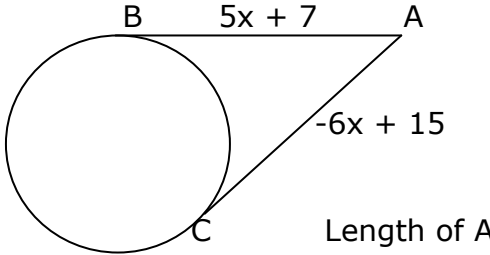
68. (rad) $(14200)\cos(250)$ -----68= _____

69. (rad) $\cos[(2.17 - 2.54)(0.245)]$ -----69= _____

70. $(104 - 186)e^{\pi - 0.335}$ -----70= _____

71. Calculate the slope of the line that passes through the points (3, 0) and (9, -7) on the coordinate plane. -----71= _____

72. Calculate the probability of drawing a face card from a standard deck of cards. -----72= _____

<p style="text-align: center;">Scalene Triangle</p>  <p style="text-align: right;">X = ?</p> <p>73= _____</p>	<p style="text-align: center;">Circle and Tangent Lines</p>  <p style="text-align: right;">Length of AB = ?</p> <p>74= _____</p>
--	--

75. $\ln\left[\frac{412 + 76.7 + 410}{531 + 573 - 264}\right]$ -----75= _____

76. $\frac{(4.63)^{0.533}(2.35)^{0.947}}{(2.77 - 0.335)^{-7}}$ -----76= _____

77. $2\log\sqrt{\frac{(162)(9.56)}{291 + 234}}$ -----77= _____

78. $\frac{(e^{0.517})(e^{0.752})(e^{0.808})}{\ln(168 + 177)}$ -----78= _____

79. $2 + 4 + 6 + \dots + 720$ -----79= _____

80. $\frac{1}{(0.16)} + \frac{1}{3(0.16)^3} + \frac{1}{5(0.16)^5} + \frac{1}{7(0.16)^7}$ -----80= _____

2016-2017 TMSCA Middle School Calculator Test 1 Answer Key

Page 1	Page 2	Page 3	Page 4
1 = 2250 = 2.25×10^3	14 = -138 = -1.38×10^2	27 = -1850 = -1.85×10^3	39 = 2.87×10^8
2 = 17.7 = 1.77×10^1	15 = 64300 = 6.43×10^4	28 = 0.0868 = 8.68×10^{-2}	40 = 2.44 = 2.44×10^0
3 = -5370 = -5.37×10^3	16 = -276000 = -2.76×10^5	29 = -4.08×10^8	41 = 1.79×10^{14}
4 = -10.0 = -1.00×10^1	17 = -5.46 = -5.46×10^0	30 = 0.0605 = 6.05×10^{-2}	42 = 0.276 = 2.76×10^{-1}
5 = -2630 = -2.63×10^3	18 = 71.4 = 7.14×10^1	31 = 1.78×10^{-11}	43 = 2.83×10^{14}
6 = -59.1 = -5.91×10^1	19 = 0.00932 = 9.32×10^{-3}	32 = 1.00×10^{-9}	44 = 1.92 = 1.92×10^0
7 = 3.46 = 3.46×10^0	20 = -2.74×10^{-7}	33 = 61.8 = 6.18×10^1	45 = 1.34×10^7
8 = -1.59 = -1.59×10^0	21 = -11.2 = -1.12×10^1	34 = 2.62 = 2.62×10^0	46 = 23.6 = 2.36×10^1
9 = 6.32×10^6	22 = 0.000188 = 1.88×10^{-4}	35 = 8.17 = 8.17×10^0	47 = 8.21 = 8.21×10^0
10 = 2.41×10^{10}	23 = 1.54 = 1.54×10^0	36 = 22.5 = 2.25×10^1	48 = 32.0 = 3.20×10^1
11 = \$52.00	24 = 17 INT.	37 = 1490 = 1.49×10^3	49 = 73.9 = 7.39×10^1
12 = 86.1 = 8.61×10^1	25 = 0.0448 = 4.48×10^{-2}	38 = 4.08×10^7	50 = 79900 = 7.99×10^4
13 = 149 = 1.49×10^2	26 = \$160.44		

2017-B Test Answers

Page 5

$$51 = 152000$$
$$= 1.52 \times 10^5$$

$$52 = 399000$$
$$= 3.99 \times 10^5$$

$$53 = 3.17 \times 10^{-5}$$

$$54 = -3.60$$
$$= -3.60 \times 10^0$$

$$55 = 2230$$
$$= 2.23 \times 10^3$$

$$56 = 4.99$$
$$= 4.99 \times 10^0$$

$$57 = 1.91 \times 10^{-6}$$

$$58 = -0.844$$
$$= -8.44 \times 10^{-1}$$

$$59 = \$1125.00$$

$$60 = 231 \text{ INT.}$$

Page 6

$$61 = 2.08$$
$$= 2.08 \times 10^0$$

$$62 = 235$$
$$= 2.35 \times 10^2$$

$$63 = 745000$$
$$= 7.45 \times 10^5$$

$$64 = 242$$
$$= 2.42 \times 10^2$$

$$65 = 50.5$$
$$= 5.05 \times 10^1$$

$$66 = -0.0710$$
$$= -7.10 \times 10^{-2}$$

$$67 = -1.75$$
$$= -1.75 \times 10^0$$

$$68 = 3420$$
$$= 3.42 \times 10^3$$

$$69 = 0.996$$
$$= 9.96 \times 10^{-1}$$

$$70 = -1360$$
$$= -1.36 \times 10^3$$

$$71 = -1.17$$
$$= -1.17 \times 10^0$$

$$72 = 0.231$$
$$= 2.31 \times 10^{-1}$$

Page 7

$$73 = 4210$$
$$= 4.21 \times 10^3$$

$$74 = 0.727$$
$$= 7.27 \times 10^{-1}$$

$$75 = 0.0675$$
$$= 6.75 \times 10^{-2}$$

$$76 = 2580$$
$$= 2.58 \times 10^3$$

$$77 = 0.470$$
$$= 4.70 \times 10^{-1}$$

$$78 = 1.37$$
$$= 1.37 \times 10^0$$

$$79 = 130000$$
$$= 1.30 \times 10^5$$

$$80 = 55200$$
$$= 5.52 \times 10^4$$

TMSCA 16-17 MS CA Test #1 Solutions to Word and Geometry Problems

11. $45.22(1.15)$ or
 $45.22 + 45.22(.15)$

Look at the show key to see the cents. You must be within one cent of the answer on the key.

12. There are 9 square feet in one square yard. $\frac{25 \times 31}{9}$

13. $122.8(5) - 154.8 - 100.9 - 98.3 - 111.1$

24. $4a + 32 = 100.$
 $a = \frac{100 - 32}{4}$

25. July has 31 days. Minutes = $31(24)60 = 44640$
 $\frac{x}{100} = \frac{20}{44640}$
 $x = \frac{20(100)}{44640}$

26. $12.75 \left(4 + 5\frac{1}{3} + 3\frac{1}{4}\right)$
 Look at the SHOW key to see the cents.

35. $\frac{4\frac{8}{12}}{3} = \frac{x}{5\frac{3}{12}}$ $x =$
 $\frac{\left(4\frac{8}{12}\right)\left(5\frac{3}{12}\right)}{3}$

36. 100 yards = 300 feet.

$$\frac{300 \text{ ft}}{9.1 \text{ sec}} \times \frac{3600 \text{ sec}}{1 \text{ hour}} \times \frac{m \text{ miles}}{5280 \text{ ft}}$$

The words "ft, sec" cancel out so you end up with mph.

Note: this is not a proportion.

37. $A = \frac{\text{diagonal}^2}{2} = \frac{54.6^2}{2}$

38. $A = bh = (12345)(3302)$

47. Shorter piece = x
 Longer piece is $x + 43/12$ ft.

$$x + x + \frac{43}{12} = 20$$

$$x = \frac{20 - \frac{43}{12}}{2}$$

48. $(87)(37) = \pi r^2$

$$r = \sqrt{\frac{87(37)}{\pi}}$$

49. $\sqrt{12.6^2 + 72.8^2}$

50. $\frac{\cos 36}{1} = \frac{x}{98765}$
 $x = 98765(\cos 36)$

59. $I = Prt$

$$I = 12000(.03125)3$$

Look at Show key to see full dollars and cents. You must write .00 for the cents.

60. $\frac{n(n-1)}{2} = \frac{22(21)}{2}$

60. $\frac{n(n-1)}{2} = \frac{22(21)}{2}$

61. $SA = 2d^2 = 2(1.0209)^2$

62. $A = \frac{s^2\sqrt{3}}{4} = \frac{23.32^2\sqrt{3}}{4}$

71. $\frac{y_2 - y_1}{x_2 - x_1} = \frac{-7 - 0}{9 - 3}$

72. There are 12 face cards (Jack, Queen, King) in each of the 4 suits. $P = \frac{12}{52}$

73. Law of Sines: $\frac{\sin A}{a} = \frac{\sin B}{b}$

$$\frac{\sin 121}{10067} = \frac{\sin 21}{x}$$

$$x = \frac{\sin(21) [10067]}{\sin(121)}$$

74. $5x + 7 = -6x + 15$
 $11x = 8$ so $x = \frac{8}{11}$