

2017-2018 TMSCA Middle School Calculator Test 7

1. $5540 + 615$ ----- 1= _____

2. $-30 - 51 - 46$ ----- 2= _____

3. $13.8 + 12.3 + 25.2$ ----- 3= _____

4. $16 + 16 - \pi - 2$ ----- 4= _____

5. $65 - 132 - 127 + 122$ ----- 5= _____

6. $114 + 93.5 - 94.4 - 183 + 165$ ----- 6= _____

7. $4.42 + 2.87 - \pi + 2.01 + 5.05$ ----- 7= _____

8. $0.825 + 1.15 + 0.833 + 0.553 + 0.247$ ----- 8= _____

9. $93.6 \times 207 \times 39.4$ ----- 9= _____

10. $2930 \times 51 \times 251 \times 185$ ----- 10= _____

11. The average of twenty-three numbers is 578.4. If 222 and 1,007 are added to the group of numbers, calculate the new average of the group of twenty-five numbers. ----- 11= _____

12. The Fibonacci sequence is a special sequence where the next term is the sum of the previous two. 0, 1, 1, 2, 3, 5, 8, 13, ... Calculate the product of the 9th, 10th, and 11th term of the Fibonacci sequence. ----- 12= _____ INT.

13. Rhonda is selling her litter of 10 puppies. She is selling the 1st two picks of puppies for \$500. The next 2 picks are 25% off that price at \$375. The next 2 picks at 25% off that price and so on. Calculate the cost of the final 2 puppies. ----- 13=\$ _____

14. $(242/26)[151 - 137]$ ----- 14= _____

15. $124/[20 \times 154 \times 121]$ ----- 15= _____

16. $(90 + 42)[37 - 27 - 87]$ ----- 16= _____

17. $\{80/89\} \left[\frac{206}{93 + 189} \right]$ ----- 17= _____

18. $\left[\frac{(1.57 + 1.3)}{38/132} \right] \left[\frac{13.1}{0.416} \right]$ ----- 18= _____

19. $\frac{[0.27/(0.2)]/0.00442}{(1.84 \times 1.5)(0.00617)}$ ----- 19= _____

20. $(0.0189)[331/260 \times 108/65] - 0.00519$ ----- 20= _____

21. $\frac{(36.8)(685)}{57.2} (84 - 23.3)$ ----- 21= _____

22. $\frac{(0.0711 + 0.0756 - 0.029)}{\{(0.00286 - 0.00252)/(0.103)\}}$ ----- 22= _____

23. $\frac{(3140 \times 779)/1070}{(978 \times 0.36) + 119}$ ----- 23= _____

24. Calculate the value of the 23rd triangular number. ----- 24= _____ INT.

25. The area of a circle is 25π square units. Calculate the ratio of the area of the circle to the circumference of the circle. ----- 25= _____

26. A certain airplane travels at a cruise speed of 567 miles per hour. Calculate how many feet per second this speed is. ----- 26= _____ ft./sec.

27. $[4150 - (2820 + 1850)] + [(-0.0285)(4670 - 1240)]$ --- 27= _____

28. $\frac{(17.2 - 15.2)(0.0622 + 0.0333)}{(1.83 \times 10^{11})}$ ----- 28= _____

29. $\frac{(0.2 + 0.131)(39.2 + 31.8)}{(1.29 \times 10^{11})}$ ----- 29= _____

30. $(1.11) \left[\frac{1.33}{(1.38 \times 10^{-8})} \right]$ ----- 30= _____

31. $\frac{(0.0423 + 0.0876)}{(8.47 \times 10^{10})}$ ----- 31= _____

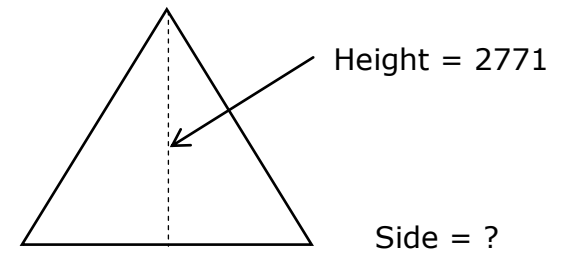
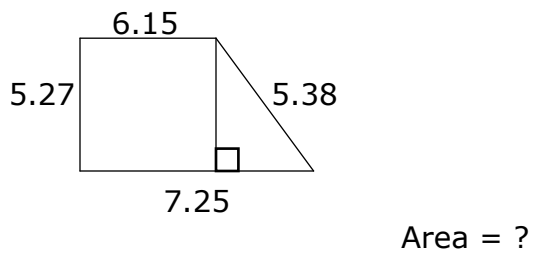
32. $(34.9) [(8.08 \times 10^{10}) - (1.07 \times 10^{11})]$ ----- 32= _____

33. $\left[\frac{1/1690}{1/1910} \right] [2.18 \times 10^6]$ ----- 33= _____

34. $\frac{1}{7770} - \frac{1}{4390} + \frac{1}{2660}$ ----- 34= _____

35. Two angles are complementary. One angle is 10 more than 6 times the other. Calculate the measure of the larger angle. ----- 35= _____

36. 21575 Base 8 is what value in Base 10. ----- 36= _____ INT.

<p>EQUILATERAL TRIANGLE</p>  <p>Height = 2771</p> <p>Side = ?</p> <p>37= _____</p>	<p>TRAPEZOID</p>  <p>Area = ?</p> <p>38= _____</p>
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39. $\left[\frac{52400 + (1/(2.81 \times 10^{-5}))}{(23400/12000) - 1.79} \right]^2$ ----- 39= _____

40. $(8.87 + 7.88)^2(98.1 + 52.4)^2$ ----- 40= _____

41. $(3.52 + 9.31 + 6.09)^2(0.142 + 0.297)^2$ ----- 41= _____

42. $(169)\sqrt{9150 + 2670 + 10700}$ ----- 42= _____

43. $(1/(0.00741))(13700 - 5340)^3$ ----- 43= _____

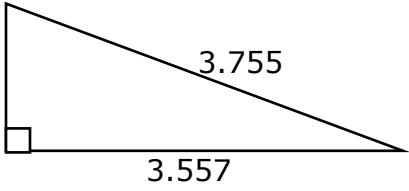
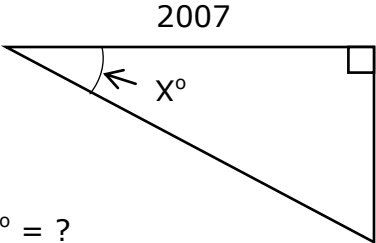
44. $\sqrt{(6380/7750) + 0.539 - 0.48}$ ----- 44= _____

45. $\sqrt[4]{1.26 - 219/230} + 1/\sqrt{40.4 + 45.8}$ ----- 45= _____

46. $\left[\sqrt[4]{(640/1240)(2.72)} \right]^5$ ----- 46= _____

47. A heptagon has angles in the ratio of 2:2:6:8:9:10:10. Calculate the measure of the median angle in degrees. ----- 47= _____°

48. Calculate the slope of the line perpendicular to the line $6x - 5y = 7$. ----- 48= _____

<p style="text-align: center;">RIGHT TRIANGLE</p>  <p style="text-align: center;">Perimeter = ?</p> <p>49= _____</p>	<p style="text-align: center;">RIGHT TRIANGLE</p>  <p style="text-align: center;">$X^\circ = ?$</p> <p>50= _____</p>
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51. $\frac{\sqrt{1.84 + \pi + 3.75}}{(68100 - 84800 + 72500)^4}$ ----- 51=_____

52. $\left[\frac{87.2 + 75.3 + \sqrt{17900 + 14800}}{16200/33800} \right]^4$ ----- 52=_____

53. $\left[\frac{\sqrt{\sqrt{1340 - 1070}}}{-(1.35 - 1.88)} \right]^3 [640 + 213]$ ----- 53=_____

54. $10800 + \sqrt{(32700)(20300)} - (30800 + 35100)$ ----- 54=_____

55. $(26.7)^2 \sqrt{(33.5)/(1.33)} - (1270 + 1050)$ ----- 55=_____

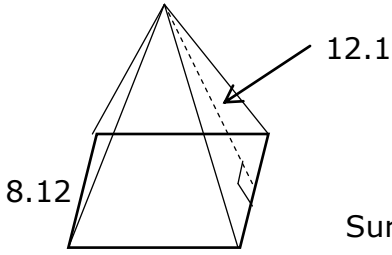
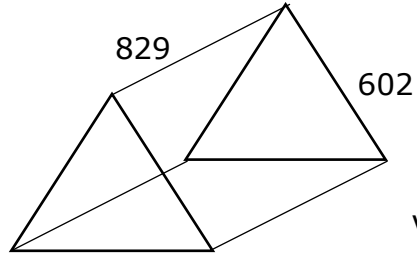
56. $\sqrt{\frac{1/(33.7 - 17.3)}{(310)(38.9 + 11.2)^5}}$ ----- 56=_____

57. $\sqrt{\frac{1/(363 - 193)}{(1890)(277 + 836)^{-2}}}$ ----- 57=_____

58. $\sqrt{\frac{(48.5)(147)}{(15.7) + (10.6)}} + 1/(0.0608)^1$ ----- 58=_____

59. Calculate the sum of the roots of the quadratic equation
 $5 + 3x^2 = 4x$ ----- 59=_____

60. Mark weighs 82 pounds and sits 6.5 feet from the fulcrum of a seesaw. If Mike sits 5 feet from the fulcrum and balances the seesaw, calculate Mikes' weight. ----- 60=_____ lbs.

<p style="text-align: center;">SQUARE BASE PYRAMID</p>  <p style="text-align: right;">Surface Area = ?</p> <p>61= _____</p>	<p style="text-align: center;">EQUILATERAL TRIANGULAR PRISM</p>  <p style="text-align: right;">Volume = ?</p> <p>62= _____</p>
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63. $\frac{10!}{16!}$ ----- 63= _____

64. (deg) $(24.4 - 16.5)\sin(19.9^\circ)$ ----- 64= _____

65. $(92100 - 73000)^{-6}(1.82 \times 10^6)$ ----- 65= _____

66. (rad) $\tan\left[\frac{(9.01)(\pi)}{(175)(4.19)}\right]$ ----- 66= _____

67. (deg) $(1020 - 246)\sin(149^\circ) + 299$ ----- 67= _____

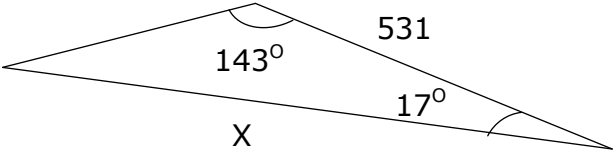
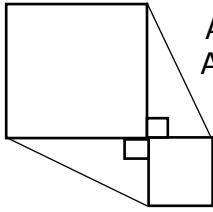
68. (rad) $(5490)\sin(226)$ ----- 68= _____

69. (deg) $\frac{\sin(647^\circ)}{\tan(647^\circ)}[37.9]$ ----- 69= _____

70. $(468 + 423 + 618)^{1/5}$ ----- 70= _____

71. Stanley invests \$10,000 at 3.125% compounded annually for 5 years. Calculate the amount of interest earned in those 5 years. 71=\$ _____

72. Calculate the probability of flipping a dime and having it not land on tails and rolling a standard six sided die and having it not land on a 6. ----- 72= _____

<p style="text-align: center;">SCALENE TRIANGLE</p>  <p style="margin-left: 40px;">$X = ?$</p> <p>73= _____</p>	<p style="text-align: center;">SQUARES AND RIGHT TRIANGLES</p>  <p style="margin-left: 40px;">Area of large square = 176.52 Area of small square = 26.11</p> <p style="margin-left: 40px;">Perimeter = ?</p> <p>74= _____</p>
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75. $\frac{0.0133 + \sqrt{(0.015)(0.014) + (0.0889)(0.533)}}{\sqrt{\sqrt{0.0429 + 0.0555}}}$ ----- 75= _____

76. $\frac{\text{Log}(1.50 \times 10^8 + 9.64 \times 10^7)}{0.965}$ ----- 76= _____

77. $2\text{Log}\sqrt{\frac{(3.7)(240)}{\pi + 4.19}}$ ----- 77= _____

78. $\frac{(e^{0.233})(e^{0.749})(e^{0.724})}{\text{Ln}(1.47 + 3.59)}$ ----- 78= _____

79. $4 + 6 + 8 + \dots + 576$ ----- 79= _____

80. $1 + \frac{(0.39)^4}{2} - \frac{(0.39)^6}{6} + \frac{(0.39)^8}{24} - \frac{(0.39)^{10}}{120}$ ----- 80= _____

2017-2018 TMSCA Middle School Calculator Test 7 Answer Key

Page 1	Page 2	Page 3	Page 4
1 = 6160 = 6.16×10^3	14 = 130 = 1.30×10^2	27 = -618 = -6.18×10^2	39 = 3.02×10^{11}
2 = -127 = -1.27×10^2	15 = 0.000333 = 3.33×10^{-4}	28 = 1.04×10^{-12}	40 = 6.35×10^6
3 = 51.3 = 5.13×10^1	16 = -10200 = -1.02×10^4	29 = 1.82×10^{-10}	41 = 69.0 = 6.90×10^1
4 = 26.9 = 2.69×10^1	17 = 0.657 = 6.57×10^{-1}	30 = 1.07×10^8	42 = 25400 = 2.54×10^4
5 = -72.0 = -7.20×10^1	18 = 314 = 3.14×10^2	31 = 1.53×10^{-12}	43 = 7.88×10^{13}
6 = 95.1 = 9.51×10^1	19 = 17900 = 1.79×10^4	32 = -9.14×10^{11}	44 = 0.939 = 9.39×10^{-1}
7 = 11.2 = 1.12×10^1	20 = 0.0348 = 3.48×10^{-2}	33 = 2.46×10^6	45 = 0.853 = 8.53×10^{-1}
8 = 3.61 = 3.61×10^0	21 = 26800 = 2.68×10^4	34 = 0.000277 = 2.77×10^{-4}	46 = 1.53 = 1.53×10^0
9 = 763000 = 7.63×10^5	22 = 35.7 = 3.57×10^1	35 = 78.6 = 7.86×10^1	47 = 153 = 1.53×10^0
10 = 6.94×10^9	23 = 4.85 = 4.85×10^0	36 = 9085 INT.	48 = -0.833 = -8.33×10^{-1}
11 = 581 = 5.81×10^2	24 = 276 INT.	37 = 3200 = 3.20×10^3	49 = 8.52 = 8.52×10^0
12 = 39270 INT.	25 = 2.50 = 2.50×10^0	38 = 35.3 = 3.53×10^1	50 = 29.0 = 2.90×10^1
13 = \$158.20	26 = 832 = 8.32×10^2		

2017-2018 TMSCA Middle School Calculator Test 7 Answer Key

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$$51 = 3.05 \times 10^{-19}$$

$$52 = 2.63 \times 10^{11}$$

$$53 = 382000 \\ = 3.82 \times 10^5$$

$$54 = -29300 \\ = -2.93 \times 10^4$$

$$55 = 1260 \\ = 1.26 \times 10^3$$

$$56 = 7.89 \times 10^{-7}$$

$$57 = 1.96 \\ = 1.96 \times 10^0$$

$$58 = 32.9 \\ = 3.29 \times 10^1$$

$$59 = 1.33 \\ = 1.33 \times 10^0$$

$$60 = 107 \\ = 1.07 \times 10^2$$

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$$61 = 262 \\ = 2.62 \times 10^2$$

$$62 = 1.30 \times 10^8$$

$$63 = 1.73 \times 10^{-7}$$

$$64 = 2.69 \\ = 2.69 \times 10^0$$

$$65 = 3.75 \times 10^{-20}$$

$$66 = 0.0386 \\ = 3.86 \times 10^{-2}$$

$$67 = 698 \\ = 6.98 \times 10^2$$

$$68 = -1060 \\ = -1.06 \times 10^3$$

$$69 = 11.1 \\ = 1.11 \times 10^1$$

$$70 = 4.32 \\ = 4.32 \times 10^0$$

$$71 = \$1663.26$$

$$72 = 0.417 \\ = 4.17 \times 10^{-1}$$

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$$73 = 934 \\ = 9.34 \times 10^2$$

$$74 = 65.3 \\ = 6.53 \times 10^1$$

$$75 = 0.134 \\ = 1.34 \times 10^{-1}$$

$$76 = 8.70 \\ = 8.70 \times 10^0$$

$$77 = 2.08 \\ = 2.08 \times 10^0$$

$$78 = 3.40 \\ = 3.40 \times 10^0$$

$$79 = 83200 \\ = 8.32 \times 10^4$$

$$80 = 1.01 \\ = 1.01 \times 10^0$$

TMSCA 17-18 MS CA Test #7 Solutions to Word and Geometry Problems

11.

$$\frac{23(578.4) + 222 + 1007}{25}$$

12. 0,1,1,2,3,5,8,13,21,34,55
 The product of the last three
 $21 \times 34 \times 55$

13. $500(.75)^4 = \$158.20$

24.

$$\frac{23(24)}{2}$$

25. $A = 25\pi$ so $r = 5$.
 Circumference = 10π
 Ratio of Area to
 Circumference:

$$\frac{25\pi}{10\pi} = \frac{25}{10}$$

26. $\frac{567 \text{ mi}}{1 \text{ hr}} \times \frac{5280 \text{ ft}}{1 \text{ mi}} \times \frac{1 \text{ hr}}{3600 \text{ s}}$

35. Small angle = x
 Large angle = $6x + 10$
 $x + 6x + 10 = 90$; $x = 80/7$
 Larger angle = $90 - 80/7$

36.

$$2(8^4) + 1(8^3) + 5(8^2) + 7(8) + 5$$

37. The side of an equilateral triangle is $2\left(\frac{h}{\sqrt{3}}\right) = 2\left(\frac{2771}{\sqrt{3}}\right)$

38.

$$A = \frac{(b_1 + b_2)h}{2}$$

$$= \frac{(6.15 + 7.25)5.27}{2}$$

47. Heptagon has 7 sides.
 Angles in a polygon = $180(n-2) = 180(7-2) = 900$ for heptagon.
 $2x+2x+6x+8x+9x+10x+10x = 900$
 $x = 900/47$. Median is 8 times x .

48. $6x - 5y = 7$ Slope is $-a/b = -6/-5 = 6/5$. The perpendicular slope is the opposite reciprocal = $-5/6$.

49.

$$\sqrt{3.755^2 - 3.557^2} = \text{leg}$$

 Add all three sides.

50.

$$\frac{\tan x}{1} = \frac{1112}{2007}$$

$$x = \text{atan}\left(\frac{1112}{2007}\right)$$

59. $3x^2 - 4x + 5 = 0$
 Sum of roots = $-b/a = 4/3$

60. $82(6.5) = 5x$; Solve for x .

61.

$$SA = 8.12^2 + \frac{8.12(4)(12.1)}{2}$$

62. $V = Bh$;

$$B = \frac{\text{side}^2\sqrt{3}}{4} = \frac{602^2\sqrt{3}}{4}$$

$$V = \left(\frac{602^2\sqrt{3}}{4}\right)(829)$$

71. Total amount in account:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$
 where $n = 1$

$10000(1 + .03125)^5$
 To find interest, subtract
 10000

72.

$$\frac{1}{2} \times \frac{5}{6}$$

73. Third angle = $180 - 143 - 17 = 20$

$$\frac{\sin 143}{x} = \frac{\sin 20}{531}$$

$$x = \frac{531(\sin 143)}{\sin 20}$$

74. Side large square = $\sqrt{176.52} = x$
 Side small square = $\sqrt{26.11} = y$
 Hypotenuse of each triangle = $\sqrt{176.52 + 26.11}$
 Perimeter = $2(\text{hypot}) + 2x + 2y$

Note that $(\sqrt{176.52^2}) = 176.52$