

2016-2017 TMSCA Middle School Calculator Test 6

1. $793 + 656$ ----- 1= _____

2. $0.3 + 1.3 + 2.8$ ----- 2= _____

3. $-426 - 738 - 531$ ----- 3= _____

4. $11 - 43 - 51 - 60$ ----- 4= _____

5. $2030 - 591 + 430 - 1420$ ----- 5= _____

6. $-34.6 - 83 - 16.9 + 47 + 30.6$ ----- 6= _____

7. $0.893 - 4.95 + 1.82 - 1.3 - 3.91$ ----- 7= _____

8. $2.42 + 1.49 - 0.469 + 2.67 + 2.41$ ----- 8= _____

9. $41.6 \times 75.2 \times 831$ ----- 9= _____

10. $5310 \times 98.7 \times 73.1 \times 6040$ ----- 10= _____

11. The perimeter of a regular octagon and an equilateral triangle are equal. If one side of the octagon measures 72.68 inches, calculate the length of one side of the equilateral triangle. ----- 11= _____ in.

12. The temperature started at 12° Celsius. It fell to 2° Fahrenheit. Calculate the change in temperature in degrees Fahrenheit. ----- 12= _____ °F

13. Calculate how many cubic yards there are in 231 cubic meters. --- 13= _____ cu. yds.

14. $(40/33)[41 - 56]$ -----14= _____

15. $(338)[421 \times 299 \times 79]$ -----15= _____

16. $\left[\frac{91}{179}\right] [(403/459) - 0.142]$ -----16= _____

17. $\{-54/411\} \left[\frac{256}{424 + 124}\right]$ -----17= _____

18. $\left[\frac{(0.00102 + 0.00246)}{116/81}\right] \left[\frac{2.52 \times 10^{-4}}{41.4}\right]$ -----18= _____

19. $\frac{[177/(528)]/157}{(0.0204 \times 0.0365)(\pi)}$ -----19= _____

20. $\frac{(\pi)(14/31)(42/5)}{58}$ -----20= _____

21. $\frac{(27.4)(1.94)}{(1.90 \times 10^{-4})} (3.53 - 7.64)$ -----21= _____

22. $\left[\frac{4490 + 2800}{5650 - 5820}\right] \left[\frac{4410}{1200}\right]$ -----22= _____

23. $\frac{(1150 \times 4120)/4350}{(4440 \times 0.22) + 218}$ -----23= _____

24. Sara took a trip in her car. She traveled the first 98 miles at an average speed of 70 mph. She traveled the last 37 miles through a construction zone at an average speed of 55 mph. Calculate how long the trip took her. -----24= _____ hrs.

25. The carnival in town is selling admission tickets. A grown-up ticket is \$18 and a munchkin ticket is \$5. Twice as many munchkin tickets were sold as grown-up tickets. 870 tickets were sold and \$8120 was brought in. How many munchkin tickets were sold? ---25= _____ INT.

26. A single elimination tournament is held at the high school with 16 teams in attendance. Calculate how many games will be played to determine a winner? -----26= _____ INT.

27. $\frac{(6.78 \times 10^{13}) + (2.10 \times 10^{13})}{(-0.00667)(0.00209) - 9.16 \times 10^{-6}}$ -----27= _____

28. $(2.32)[(0.0296/0.024)(0.247/0.0942)]$ -----28= _____

29. $(0.0322)[(0.0761/0.122)(0.00481 + 0.00125)]$ -----29= _____

30. $\frac{1}{33.6} + \frac{1}{(\pi)(17.3 - 3.53)}$ -----30= _____

31. $[60.5] \left[\frac{1/0.0122}{1/0.0386} \right]$ -----31= _____

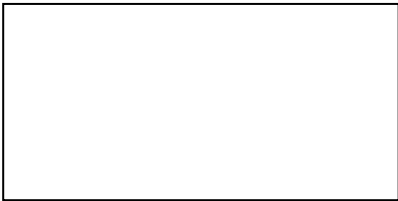
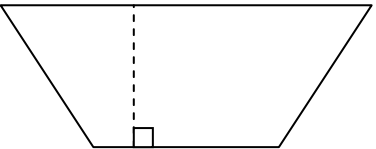
32. $(123) \left[\frac{\pi}{(2.00 \times 10^{11})} \right]$ -----32= _____

33. $1/(0.0262 - 0.0694) - 1/(-0.0263)$ -----33= _____

34. $\left[\frac{1/571}{1/360} \right] + [0.172]$ -----34= _____

35. Tina needs to cut 25 yards of string into 20 inch pieces. Calculate how many 20 in. strings will be produced? -----35= _____ INT.

36. Calculate -1357^{2468} , -----36= _____

<p style="text-align: center;">Rectangle</p> <div style="text-align: right; margin-bottom: 10px;">Area = 698</div> <div style="text-align: center; margin-bottom: 10px;">35.89</div>  <div style="text-align: right; margin-bottom: 10px;">Perimeter = ?</div> <p>37= _____</p>	<p style="text-align: center;">Trapezoid</p> <div style="text-align: right; margin-bottom: 10px;">Area = 2.30×10^{-6}</div> <div style="text-align: center; margin-bottom: 10px;">0.00285</div>  <div style="text-align: center; margin-bottom: 10px;">0.00140</div> <div style="text-align: right; margin-bottom: 10px;">Height = ?</div> <p>38= _____</p>
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39. $(0.948 + 0.293 + 0.922)^2(2130 + 1680)^2$ -----39= _____

40. $\left[\frac{4.15}{57.8}\right](5.33 + 12.2)^3$ -----40= _____

41. $\sqrt[3]{\frac{154 + 100}{1.85 - 0.8}}$ -----41= _____

42. $(1410)\sqrt{384 + 318 + 64.7}$ -----42= _____

43. $(1/(0.00299))(728 - 231)^3$ -----43= _____

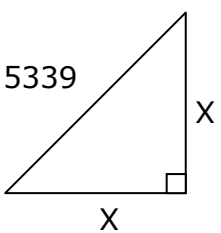
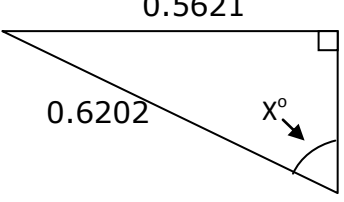
44. $(1/\pi)\sqrt{\frac{1.68 + 1.41}{0.0103 - 0.00499}}$ -----44= _____

45. $[\sqrt{(122/164)(0.44)}]^3$ -----45= _____

46. $(12700)\sqrt[4]{5250 + 9050 - 8230}$ -----46= _____

47. The distance a free falling object falls varies directly as the square of the time it falls. If it falls 8.3 feet in 6 seconds, calculate how far it will fall in 20 seconds. -----47= _____ ft.

48. The height of a cylinder of a given volume is inversely proportional to the square of the radius. A cylinder with a radius of 7 inches has a height of 12 inches. Calculate the length of the radius of a cylinder of equal volume whose height is 20 inches. -----48= _____ in.

<p style="text-align: center;">Right Triangle</p>  <p style="text-align: center;">Area = ?</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. $\sqrt{\frac{2.42 \times 10^{18}}{(2.97 \times 10^5)(1970)}} + \frac{(1400 - 903)}{(0.00415 + 0.00295)}$ -----51=_____

52. $\frac{(408 + 241 - 90.4)^4}{\sqrt{49.2 + 66.6 + 41}}$ -----52=_____

53. $\left[\frac{\sqrt{\sqrt{0.025 - 0.00719}}}{-(1.41 - 1.19)} \right]^3 [17.1 + 10.3]$ -----53=_____

54. $\sqrt{\frac{(54300)(1880)}{(1.47 \times 10^5)(2.72 \times 10^5)}} - 0.0103 + 0.0149$ -----54=_____

55. $(5.47)^2 \sqrt{(96.7)/(14)} - (57 + 72)$ -----55=_____

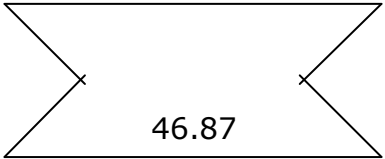
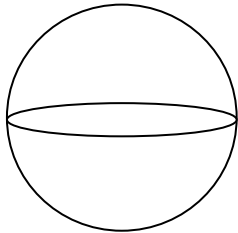
56. $4.11 + \sqrt{(3360)/(75.6)} - (0.563 + 0.385)^2$ -----56=_____

57. $\sqrt{\frac{1/(110 - 34.4)}{(174)(1030 + 298)^{-6}}}$ -----57=_____

58. $(\text{deg}) \tan(2590^\circ) + (105/357)$ -----58=_____

59. The product of two consecutive negative integers is 5,852.
Calculate the smaller integer. -----59=_____ INT.

60. In a right triangle the measure of one acute angle is $2 \frac{1}{4}$ times the
measure of the other acute angle. Calculate the measure of the
larger acute angle in degrees. -----60=_____°

<p style="text-align: center;">Rectangle and Congruent Isosceles Right Triangles</p>  <p style="text-align: center;">46.87</p> <p>Length equals 2.51 times width.</p> <p style="text-align: right;">Perimeter = ?</p> <p>61= _____</p>	<p style="text-align: center;">Sphere</p>  <p style="text-align: right;">Circumference of Great Circle = 23987</p> <p style="text-align: right;">Volume = ?</p> <p>62= _____</p>
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63. $\frac{25!}{19!} + 12!$ ----- 63= _____

64. (deg) $\frac{\cos(12.4^\circ)}{263}$ ----- 64= _____

65. (deg) $(17400 + 6390)\sin(147^\circ)$ ----- 65= _____

66. (deg) $[6.64]\tan(381^\circ - 356^\circ)$ ----- 66= _____

67. (rad) $\frac{\tan(16)}{111/592}$ ----- 67= _____

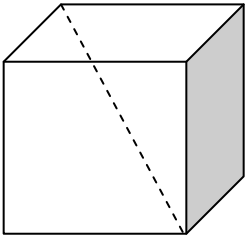
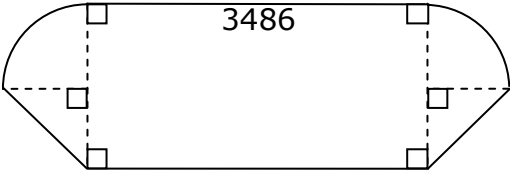
68. (deg) $\frac{\sin(693^\circ)}{\tan(693^\circ)}[486]$ ----- 68= _____

69. (deg) $\frac{\cos(215^\circ)}{720 + 2700}$ ----- 69= _____

70. $(2730 - 2720 + 3010)^{2/3}$ ----- 70= _____

71. A water tank in the shape of a rectangular prism measures 16 feet by 20 feet by 7 feet. Calculate the number of gallons this tank can hold. ----- 71= _____ gal.

72. A bag contains 20 gold, 17 silver and 22 bronze coins. Calculate the probability of drawing a bronze coin then a silver coin if the first coin is not replaced. ----- 72= _____

<p style="text-align: center;">Cube</p>  <p style="text-align: right;">Inner Diagonal = 1090</p> <p style="text-align: center;">Volume = ?</p> <p>73= _____</p>	<p style="text-align: center;">Right Isosceles Triangles, Rectangle and Quarter Circles</p>  <p style="text-align: center;">Radius of quarter circles = leg of Triangle = 860</p> <p style="text-align: right;">Area = ?</p> <p>74= _____</p>
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75. $\frac{(5.71)^{0.793}(2.54)^{0.261}}{(0.965 - 0.911)^{-7}}$ -----75= _____

76. $\frac{\text{Log}(1.11 \times 10^8 + 1.06 \times 10^8)}{22.8}$ -----76= _____

77. $\text{Log} \sqrt{\frac{17.2 - 6.01}{(5.53)(8.23)}}$ -----77= _____

78. $\text{Ln} \left[\frac{59.9 + 89.8 + 295}{213 - 139 - 48.3} \right]$ -----78= _____

79. $4 + 6 + 8 + \dots + 850$ -----79= _____

80. $1 + (0.141) + \frac{(0.141)^2}{2} + \frac{(0.141)^3}{6} + \frac{(0.141)^4}{24}$ -----80= _____

2016-2017 TMSCA Middle School Calculator Test 6 Answer Key

Page 1	Page 2	Page 3	Page 4
1 = 1450 = 1.45×10^3	14 = -18.2 = -1.82×10^1	27 = -3.84×10^{18}	39 = 6.79×10^7
2 = 4.40 = 4.40×10^0	15 = 3.36×10^9	28 = 7.50 = 7.50×10^0	40 = 387 = 3.87×10^2
3 = -1700 = -1.70×10^3	16 = 0.374 = 3.74×10^{-1}	29 = 0.000122 = 1.22×10^{-4}	41 = 6.23 = 6.23×10^0
4 = -143 = -1.43×10^2	17 = -0.0614 = -6.14×10^{-2}	30 = 0.0529 = 5.29×10^{-2}	42 = 39000 = 3.90×10^4
5 = 449 = 4.49×10^2	18 = 1.48×10^{-8}	31 = 191 = 1.91×10^2	43 = 4.11×10^{10}
6 = -56.9 = -5.69×10^1	19 = 0.913 = 9.13×10^{-1}	32 = 1.93×10^{-9}	44 = 7.68 = 7.68×10^0
7 = -7.45 = -7.45×10^0	20 = 0.205 = 2.05×10^{-1}	33 = 14.9 = 1.49×10^1	45 = 0.187 = 1.87×10^{-1}
8 = 8.52 = 8.52×10^0	21 = -1.15×10^6	34 = 0.802 = 8.02×10^{-1}	46 = 112000 = 1.12×10^5
9 = 2.60×10^6	22 = -158 = -1.58×10^2	35 = 45 INT.	47 = 92.2 = 9.22×10^1
10 = 2.31×10^{11}	23 = 0.912 = 9.12×10^{-1}	36 = -1.61×10^{7731}	48 = 5.42 = 5.42×10^0
11 = 194 = 1.94×10^2	24 = 2.07 = 2.07×10^0	37 = 111 = 1.11×10^2	49 = 7.13×10^6
12 = -51.6 = -5.16×10^1	25 = 580 INT.	38 = 0.00108 = 1.08×10^{-3}	50 = 65.0 = 6.50×10^1
13 = 302 = 3.02×10^2	26 = 15 INT.		

2016-2017 TMSCA Middle School Calculator Test 6 Answer Key

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$$51 = 134000 \\ = 1.34 \times 10^5$$

$$52 = 7.78 \times 10^9$$

$$53 = -125 \\ = -1.25 \times 10^2$$

$$54 = 0.0551 \\ = 5.51 \times 10^{-2}$$

$$55 = -50.4 \\ = -5.04 \times 10^1$$

$$56 = 9.88 \\ = 9.88 \times 10^0$$

$$57 = 2.04 \times 10^7$$

$$58 = 3.04 \\ = 3.04 \times 10^0$$

$$59 = -77 \text{ INT.}$$

$$60 = 62.3 \\ = 6.23 \times 10^1$$

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$$61 = 147 \\ = 1.47 \times 10^2$$

$$62 = 2.33 \times 10^{11}$$

$$63 = 6.07 \times 10^8$$

$$64 = 0.00371 \\ = 3.71 \times 10^{-3}$$

$$65 = 13000 \\ = 1.30 \times 10^4$$

$$66 = 3.10 \\ = 3.10 \times 10^0$$

$$67 = 1.60 \\ = 1.60 \times 10^0$$

$$68 = 433 \\ = 4.33 \times 10^2$$

$$69 = -0.000240 \\ = -2.40 \times 10^{-4}$$

$$70 = 209 \\ = 2.09 \times 10^2$$

$$71 = 16800 \\ = 1.68 \times 10^4$$

$$72 = 0.109 \\ = 1.09 \times 10^{-1}$$

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$$73 = 2.49 \times 10^8$$

$$74 = 7.90 \times 10^6$$

$$75 = 6.80 \times 10^{-9}$$

$$76 = 0.366 \\ = 3.66 \times 10^{-1}$$

$$77 = -0.305 \\ = -3.05 \times 10^{-1}$$

$$78 = 2.85 \\ = 2.85 \times 10^0$$

$$79 = 181000 \\ = 1.81 \times 10^5$$

$$80 = 1.15 \\ = 1.15 \times 10^0$$

TMSCA 16-17 MS CA Test #6 Solutions to Word and Geometry Problems

11. $72.68(8) = 3x$
 $x = \frac{72.68(8)}{3}$

12. On RPN Calculator punch 12, left shift, 7. Gives 53.6° F. $2 - 53.6 = -51.6$. It is negative since the temperature dropped.

13. $231\text{m}^3 = 231(100)^3\text{cm}^3$
 Using RPN calculator convert to in^3 by pressing left shift 6, three times. Divide by 36 three times.

24. $\frac{d}{r} = \text{time}$
 $\frac{98}{70} + \frac{37}{55}$

25. $x =$ number of grown-up tickets sold; $2x =$ number of munchkin tickets sold.

$3x = 870; x = \frac{870}{3} = 290$
 Munchkin tickets = $290(2)$

26. $8 + 4 + 2 + 1$

35. $\frac{25(36)}{20}$

37. Short side = $\frac{698}{35.89}$
 Perimeter = $2l + 2w =$
 $2\left(\frac{698}{35.89} + 2(35.89)\right)$

36. This will be a negative answer since the base does not include the negative.

2468 1357
 (Look at the digits to the left of the decimal. This gives 7731 for the exponent. Write down 7731.)

7731
 (This gives $1.61E0$ which is the first part of your answer. The answer is -1.61×10^{7731}). This is done on the RPN calculator.

38. $\frac{(.00285 + .00140)h}{2} = 2.30 \times 10^{-6}; h = \frac{(2.30 \times 10^{-6})(2)}{.00285 + .00140}$

47. $\frac{8.3}{6^2} = \frac{x}{20^2}; x = \frac{20^2(8.3)}{6^2}$

48. $12(7)^2 = 20r^2;$
 $r = \sqrt{\frac{12(7)^2}{20}}$

49. $x = \frac{5339}{\sqrt{2}}; \text{Area} = \frac{\left(\frac{5339}{\sqrt{2}}\right)^2}{2}$
 OR $A = \frac{5339^2}{4}$

50. $\frac{\sin x}{1} = \frac{.5621}{.6202};$
 $x = \text{asin}\left(\frac{.5621}{.6202}\right)$

59. Logical thinking: The two numbers are either side of $-\sqrt{5852}$ so the two numbers are -77 and -76. The least is -77.

60. $x =$ smaller angle; $2.25x =$ larger angle. $x + 2.25x = 90$
 $x = \frac{90}{3.25}$ The larger angle is $2.25\left(\frac{90}{3.25}\right)$

61. Width = $\frac{46.87}{2.51}$. This is the hypotenuse of the right isosceles triangles. The legs of these triangles are each $\frac{\left(\frac{46.87}{2.51}\right)}{\sqrt{2}}$. The perimeter =

$46.87(2) + 4\left[\frac{\left(\frac{46.87}{2.51}\right)}{\sqrt{2}}\right]$

62. $2\pi r = 23987; r = \frac{23987}{2\pi};$
 $V = \frac{4}{3}\pi\left(\frac{23987}{2\pi}\right)^3$

71. Convert to inches since $231 \text{ in}^3 = 1 \text{ gallon}$
 $G = \frac{16(12) \times 20(12) \times 7(12)}{231}$

72. $\frac{22}{59} \times \frac{17}{58}$

73. Edge = $\frac{1090}{\sqrt{3}}; V = \left(\frac{1090}{\sqrt{3}}\right)^3$

74. Rectangle: $(3486)(860)(2)$
 Combined triangles: 860^2
 Semicircle: $\frac{\pi(860)^2}{2}$. Find sum.