



**2016-2017 TMSCA Middle School Calculator Test 8**

1.  $3440 + 3360$  ----- 1=\_\_\_\_\_

2.  $13 - 31 + 12$  ----- 2=\_\_\_\_\_

3.  $1390 + 465 - 1480$  ----- 3=\_\_\_\_\_

4.  $11 - \pi + 6 - 5$  ----- 4=\_\_\_\_\_

5.  $2610 + 1140 - 2520 - 2900$  ----- 5=\_\_\_\_\_

6.  $50.7 - 50.1 - 26.1 - 42.5 + 32.7$  ----- 6=\_\_\_\_\_

7.  $(1.46 - 0.449) + (1.73 - 1.47 - 0.622)$  ----- 7=\_\_\_\_\_

8.  $0.457 + 0.442 - 0.64 + 0.403 + 0.313$  ----- 8=\_\_\_\_\_

9.  $152 \times 82.9 \times 280$  ----- 9=\_\_\_\_\_

10.  $760 \times 1670 \times 410 \times 1140$  ----- 10=\_\_\_\_\_

11. Mandy has \$20 to spend for her birthday. She wants to buy a necklace for \$11.23, two rings for \$5.67 each and a bracelet for \$7.84. Calculate how much she is short? ----- 11=\$\_\_\_\_\_

12. Forty-five percent of the student body voted for Bob. If there are 540 students, calculate how many students did not vote for Bob. -12=\_\_\_\_\_ INT.

13. Marvin completed three-quarters of his calculator test in order starting with number one. He missed 10% of those. Calculate his score. ----- 13=\_\_\_\_\_ INT.

14.  $(139/136)[99 - 68]$  -----14= \_\_\_\_\_

15.  $-45/[66 \times 112 \times 33]$  -----15= \_\_\_\_\_

16.  $(118 + 188)[150 - 100 - 167]$  -----16= \_\_\_\_\_

17.  $\left[\frac{104}{191}\right] [(125/421) + 0.0742]$  -----17= \_\_\_\_\_

18.  $\frac{[0.0187/(0.0215)]/22.9}{(17 \times 8.86)(0.00253)}$  -----18= \_\_\_\_\_

19.  $\left[\frac{(1480/627) - (875/211)}{0.00373/0.00638}\right]$  -----19= \_\_\_\_\_

20.  $\frac{26}{(34 - 182)} - \frac{(82 - 73)}{196}$  -----20= \_\_\_\_\_

21.  $\frac{0.157 + 0.201 + 0.162}{(23.3)(0.45)(0.188)}$  -----21= \_\_\_\_\_

22.  $\left[\frac{513 + 289}{679 - 514}\right] \left[\frac{898}{494}\right]$  -----22= \_\_\_\_\_

23.  $\frac{(0.706 + 0.388 - 0.695)}{\{(3.14 - 4.43)/(9.97)\}}$  -----23= \_\_\_\_\_

24. Convert two hundred fifty miles to centimeters. -----24= \_\_\_\_\_ cm

25. Sandra has a 16 foot 1 by 4 that she wants to cut into 2 pieces. She needs one piece to be 1 foot 5 inches longer than the other. Calculate the length of the longer piece in feet. -----25= \_\_\_\_\_ ft.

26. In a 45-45-90 triangle, the hypotenuse measures 4.21 inches. Calculate the area of the triangle. -----26= \_\_\_\_\_ sq. in.

27.  $\frac{(3.52 \times 10^8) + (7.46 \times 10^8)}{(-1.42)(0.992) - 1.22}$  -----27= \_\_\_\_\_

28.  $\frac{(0.0239 + 0.0156)(0.0192 + 0.026)}{(9.64 \times 10^{10})}$  -----28= \_\_\_\_\_

29.  $(0.0176)[(0.0169/0.0153)(0.178 + 0.751)]$  -----29= \_\_\_\_\_

30.  $(1.44) \left[ \frac{10.2}{(2.11 \times 10^{11})} \right]$  -----30= \_\_\_\_\_

31.  $[5.16] \left[ \frac{1/6.39}{1/9.28} \right]$  -----31= \_\_\_\_\_

32.  $\frac{1}{9.65} + \frac{1}{(\pi)(16.8 - 10.1)}$  -----32= \_\_\_\_\_

33.  $\left[ \frac{1/3350}{1/875} \right] [1.82 \times 10^6]$  -----33= \_\_\_\_\_

34.  $\frac{1}{184} - \frac{1}{58.7} + \frac{1}{278}$  -----34= \_\_\_\_\_

35. Calculate  $e^{2775}$ . -----35= \_\_\_\_\_

36. Roommates Tim and Tom leave their apartment. Tim leaves at 9 a.m., going east at 70 mph. Tom leaves at 10 a.m. and goes west. At noon they are 347 miles apart. Calculate Tom's speed in mph. -----36= \_\_\_\_\_ mph

<p style="text-align: center;"><b>RECTANGLE</b></p> <div style="text-align: center;"> </div> <p style="text-align: center;">Perimeter = 350.9 Area = ?</p> <p>37= _____</p>	<p style="text-align: center;"><b>TRAPEZOID</b></p> <div style="text-align: center;"> </div> <p style="text-align: center;">Area = 1072.97 Height = ?</p> <p>38= _____</p>
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39.  $(1.75 + 3.7 + 1.6)^2(1.76 + 5.15)^2$  -----39= \_\_\_\_\_

40.  $\left[ \frac{3570 + (1/(5.20 \times 10^{-4}))}{(1260/1920) - 0.426} \right]^2$  -----40= \_\_\_\_\_

41.  $(2.65 + 3.07)^2(4.21 + 2.19)^2$  -----41= \_\_\_\_\_

42.  $(1/(0.0291))(1.07 \times 10^5 - 1.02 \times 10^5)^2$  -----42= \_\_\_\_\_

43.  $\sqrt{6.49} + \sqrt{8.41 + 8.64} - (\pi)\sqrt{1.87}$  -----43= \_\_\_\_\_

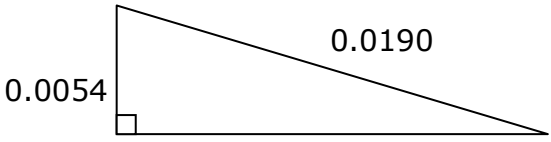
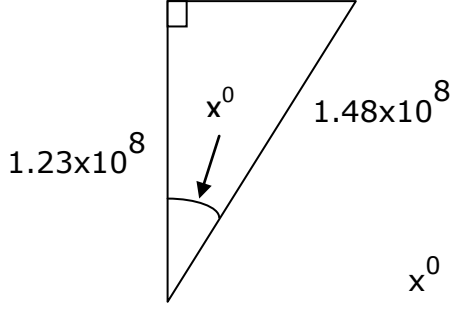
44.  $(4080)\sqrt{68 + 83.5 + 39.1}$  -----44= \_\_\_\_\_

45.  $\left[ \sqrt[3]{(4720/6010)(204)} \right]^4$  -----45= \_\_\_\_\_

46.  $\frac{1}{\sqrt{3690 + 4930 + 1200}} + \left( \frac{1}{\sqrt{46}} \right)^2$  -----46= \_\_\_\_\_

47. Calculate the number of distinct diagonals in a polygon with one hundred thirty-one sides. -----47= \_\_\_\_\_ INT.

48. A super bouncy ball rebounds to 9/10 its previous height. The ball is dropped from 10 feet. Calculate the height after hitting the floor 4 times in feet. -----48= \_\_\_\_\_ ft.

<p style="text-align: center;">RIGHT TRIANGLE</p>  <p style="text-align: right;">Area = ?</p> <p>49= _____</p>	<p style="text-align: center;">RIGHT TRIANGLE</p>  <p style="text-align: right;"><math>x^0 = ?</math></p> <p>50= _____</p>
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51.  $\frac{\sqrt{5.62 + \pi + 10}}{(73500 - 1.21 \times 10^5 + 3.13 \times 10^5)^2}$  -----51=\_\_\_\_\_

52.  $\sqrt{\frac{7.34 \times 10^{-5}}{(0.0503)(0.0441)}} + \frac{(1750 - 918)}{(1900 + 1360)}$  -----52=\_\_\_\_\_

53.  $\frac{(6.96 + 7.33 - 11.6)^3}{\sqrt{0.897 + 1.03 + 0.849}}$  -----53=\_\_\_\_\_

54.  $0.881 + \sqrt{(889)/(214)} - (0.667 + 1.28)^2$  -----54=\_\_\_\_\_

55.  $\sqrt{\frac{(3280)(4380)}{(12400)(79700)}} - 0.0828 + 0.0829$  -----55=\_\_\_\_\_

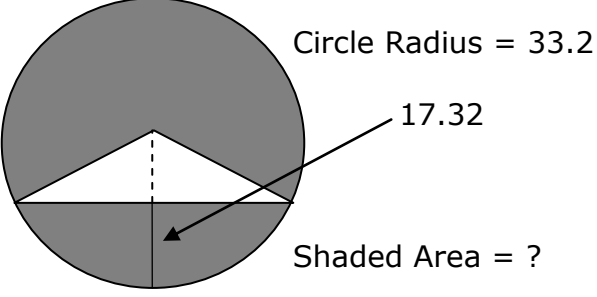
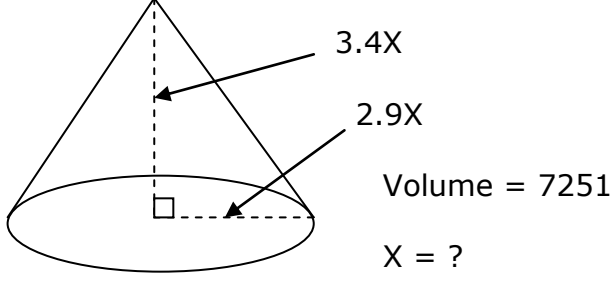
56.  $(157)^2 \sqrt{(310)/(3.74)} - (2.11 \times 10^5 + 1.45 \times 10^5)$  -----56=\_\_\_\_\_

57.  $(\text{rad}) \sin(36.7) + (60.8/13.4)$  -----57=\_\_\_\_\_

58.  $(\text{deg}) \sin(866^\circ) + (1140/4430)$  -----58=\_\_\_\_\_

59. A biologist has 245 liters of a 82% acid solution. Calculate the number of liters of water that must be added to produce a 15% acid solution.-----59=\_\_\_\_\_ l

60. Travis deposited \$8,000 at 3.85 percent interest compounded annually. Calculate how much will be in the account at the end of 6 years. -----60=\$\_\_\_\_\_

<p style="text-align: center;"><b>CIRCLE WITH ISOSCELES TRIANGLE</b></p>  <p>Circle Radius = 33.2</p> <p>17.32</p> <p>Shaded Area = ?</p> <p>61= _____</p>	<p style="text-align: center;"><b>CONE</b></p>  <p>3.4X</p> <p>2.9X</p> <p>Volume = 7251</p> <p>X = ?</p> <p>62= _____</p>
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63.  $\frac{15!}{7!} + 14!$  -----63= \_\_\_\_\_

64. (deg)  $\frac{\sin(7.25^\circ)}{210}$  -----64= \_\_\_\_\_

65.  $(21.3 - \pi)e^{0.888}$  -----65= \_\_\_\_\_

66. (rad)  $\frac{\sin(635)}{627/471}$  -----66= \_\_\_\_\_

67. (deg)  $\tan(1.25^\circ - 2.47^\circ) + 0.00935$  -----67= \_\_\_\_\_

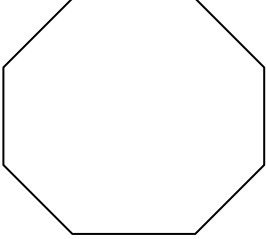
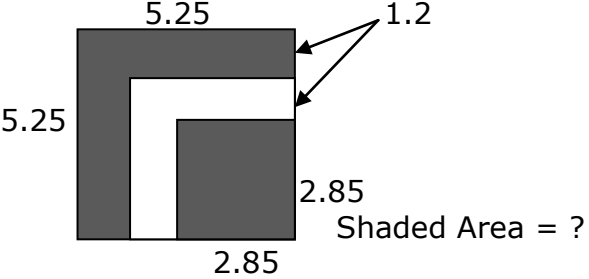
68. (deg)  $\frac{\sin(31.3^\circ) - \tan(31.3^\circ)}{\sin(31.3^\circ)}$  -----68= \_\_\_\_\_

69. (deg)  $\frac{\cos(15^\circ)}{2020 + 3400}$  -----69= \_\_\_\_\_

70.  $(23 + 10.8 + 25)^{1/5}$  -----70= \_\_\_\_\_

71. A right cylindrical tank has a diameter of 21 feet. The tank is 16 feet tall. Calculate how many gallons this tank will hold. -----71= \_\_\_\_\_ gal.

72. Calculate the odds of rolling an eight on a pair of dice. -----72= \_\_\_\_\_

<p style="text-align: center;"><b>REGULAR OCTAGON</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: left;"> <p>Perimeter = 27759</p> <p>Area = ?</p> </div> </div> <p>73= _____</p>	<p style="text-align: center;"><b>SQUARES</b></p> <div style="display: flex; justify-content: center; align-items: center;">  </div> <p>Shaded Area = ?</p> <p>74= _____</p>
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75.  $\frac{(39.9)^{0.485}(4.84)^{0.287}}{(11.3 - 3)^{-7}}$  ----- 75= \_\_\_\_\_

76.  $\frac{16.3 + \sqrt{(54.4)(21.5) + (3.58)(6.72)}}{\sqrt{\sqrt{2.34 + 0.994}}}$  ----- 76= \_\_\_\_\_

77.  $2\text{Log}\sqrt{\frac{(53.1)(9.68)}{70.8 + 28.3}}$  ----- 77= \_\_\_\_\_

78.  $\frac{\text{Log}[1.87 \times 10^5 + (206)(2750)]}{1.54 + \text{Log}[30.4 + 23.8]}$  ----- 78= \_\_\_\_\_

79.  $4 + 6 + 8 + \dots + 654$  ----- 79= \_\_\_\_\_

80.  $-\frac{1}{(2.4)} + \frac{1}{3(2.4)^3} - \frac{1}{5(2.4)^5} + \frac{1}{7(2.4)^7}$  ----- 80= \_\_\_\_\_



## 2016-2017 TMSCA Middle School Calculator Test 8 Answer Key

Page 1	Page 2	Page 3	Page 4
1 = 6800 = $6.80 \times 10^3$	14 = 31.7 = $3.17 \times 10^1$	27 = $-4.18 \times 10^8$	39 = 2370 = $2.37 \times 10^3$
2 = -6.00 = $-6.00 \times 10^0$	15 = -0.000184 = $-1.84 \times 10^{-4}$	28 = $1.85 \times 10^{-14}$	40 = $5.69 \times 10^8$
3 = 375 = $3.75 \times 10^2$	16 = -35800 = $-3.58 \times 10^4$	29 = 0.0181 = $1.81 \times 10^{-2}$	41 = 1340 = $1.34 \times 10^3$
4 = 8.86 = $8.86 \times 10^0$	17 = 0.202 = $2.02 \times 10^{-1}$	30 = $6.96 \times 10^{-11}$	42 = $8.59 \times 10^8$
5 = -1670 = $-1.67 \times 10^3$	18 = 0.0997 = $9.97 \times 10^{-2}$	31 = 7.49 = $7.49 \times 10^0$	43 = 2.38 = $2.38 \times 10^0$
6 = -35.3 = $-3.53 \times 10^1$	19 = -3.06 = $-3.06 \times 10^0$	32 = 0.151 = $1.51 \times 10^{-1}$	44 = 56300 = $5.63 \times 10^4$
7 = 0.649 = $6.49 \times 10^{-1}$	20 = -0.222 = $-2.22 \times 10^{-1}$	33 = 475000 = $4.75 \times 10^5$	45 = 870 = $8.70 \times 10^2$
8 = 0.975 = $9.75 \times 10^{-1}$	21 = 0.264 = $2.64 \times 10^{-1}$	34 = -0.00800 = $-8.00 \times 10^{-3}$	46 = 0.0318 = $3.18 \times 10^{-2}$
9 = $3.53 \times 10^6$	22 = 8.84 = $8.84 \times 10^0$	35 = $1.47 \times 10^{1205}$	47 = 8384 INT.
10 = $5.93 \times 10^{11}$	23 = -3.08 = $-3.08 \times 10^0$	36 = 68.5 = $6.85 \times 10^1$	48 = 6.56 = $6.56 \times 10^0$
11 = \$10.41	24 = $4.02 \times 10^7$	37 = 6600 = $6.60 \times 10^3$	49 = 0.0000492 = $4.92 \times 10^{-5}$
12 = 297 INT.	25 = 8.71 = $8.71 \times 10^0$	38 = 24.9 = $2.49 \times 10^1$	50 = 33.8 = $3.38 \times 10^1$
13 = 246 INT.	26 = 4.43 = $4.43 \times 10^0$		

## 2016-2017 TMSCA Middle School Calculator Test 8 Answer Key

### Page 5

$$51 = 6.14 \times 10^{-11}$$

$$52 = 0.437 \\ = 4.37 \times 10^{-1}$$

$$53 = 11.7 \\ = 1.17 \times 10^1$$

$$54 = -0.872 \\ = -8.72 \times 10^{-1}$$

$$55 = 0.121 \\ = 1.21 \times 10^{-1}$$

$$56 = -132000 \\ = -1.32 \times 10^5$$

$$57 = 3.70 \\ = 3.70 \times 10^0$$

$$58 = 0.817 \\ = 8.17 \times 10^{-1}$$

$$59 = 1090 \\ = 1.09 \times 10^3$$

$$60 = \$10035.27$$

### Page 6

$$61 = 3000 \\ = 3.00 \times 10^3$$

$$62 = 6.23 \\ = 6.23 \times 10^0$$

$$63 = 8.74 \times 10^{10}$$

$$64 = 0.000601 \\ = 6.01 \times 10^{-4}$$

$$65 = 44.1 \\ = 4.41 \times 10^1$$

$$66 = 0.291 \\ = 2.91 \times 10^{-1}$$

$$67 = -0.0119 \\ = -1.19 \times 10^{-2}$$

$$68 = -0.170 \\ = -1.70 \times 10^{-1}$$

$$69 = 0.000178 \\ = 1.78 \times 10^{-4}$$

$$70 = 2.26 \\ = 2.26 \times 10^0$$

$$71 = 41500 \\ = 4.15 \times 10^4$$

$$72 = 0.161 \\ = 1.61 \times 10^{-1}$$

### Page 7

$$73 = 5.81 \times 10^7$$

$$74 = 19.3 \\ = 1.93 \times 10^1$$

$$75 = 2.55 \times 10^7$$

$$76 = 55.2 \\ = 5.52 \times 10^1$$

$$77 = 0.715 \\ = 7.15 \times 10^{-1}$$

$$78 = 1.80 \\ = 1.80 \times 10^0$$

$$79 = 107000 \\ = 1.07 \times 10^5$$

$$80 = -0.395 \\ = -3.95 \times 10^{-1}$$

TMSCA 16-17 MS CA Test #8 Solutions to Word and Geometry Problems

**11.**  $20 - [11.23 + 2(5.67) + 7.84]$

**12.** 55% did not vote for Bob.  
.55(540)

**13.**  $\frac{3}{4}(80) = 60$  questions answered. Missed 6. Score:  
 $60(5) - 9(6)$

**24.** On RPN calculator use key to change 250 miles to Km. Then multiply by 100000 since  $100000\text{cm} = 1 \text{ km}$ .

**25.**  $x =$  shorter piece;  $x + 1\frac{5}{12} =$  longer piece (in ft.)  
 $x + x + 1\frac{5}{12} = 16$ .  
Solve for x. Add  $1\frac{5}{12}$  to get length of longer piece.

**26.** Leg of triangle =  $\frac{4.21}{\sqrt{2}}$ .  
Area =  $\frac{\left(\frac{4.21}{\sqrt{2}}\right)^2}{2}$

**35.** Using RPN calculator

2775  1

*(Digits to the left of the decimal are 1205. Write down 1205.)*

*Punch:*

1205

*( This gives 1.47 E 0. The answer should be  $1.47 \times 10^{1205}$  )*

**36.** Tim's distance =  $70(3) = 210$  miles. Tom's distance =  $2x$  which is 2 hours at  $x$  mph.  
 $2x + 210 = 347$ . Solve for  $x$ .

**37.** length =  $\frac{350.9 - 2(54.67)}{2}$   
Area = length times (54.67)

**38.**  $\frac{(28.67 + 57.34)h}{2} = 1072.97$   
So  $h = \frac{1072.97(2)}{28.67 + 57.34}$

**47.**  $\frac{n(n-3)}{2} = \frac{131(128)}{2}$

**48.**  $10(.9)^4$

**49.** Long leg =  $\sqrt{.0190^2 - .0054^2}$   
Area = (long leg)(.0054)/2

**50.**  $\text{ACOS}\left(\frac{1.23 \times 10^8}{1.48 \times 10^8}\right)$

**59.**

	Liters	% acid	Pure acid
orig	245	82	200.9
water	x	0	0
mix	245+x	15	(245+x).15

$200.9 = 0 + (245+x).15$ . Solve for  $x$ .

**60.**  $8000(1.0385)^6$   
Look at the "SHOW" key for cents.

**61.** Ht. of triangle =  $33.2 - 17.32 = 15.88$ .  $\frac{1}{2}$  of the base of the triangle =  $\sqrt{33.2^2 - 15.88^2}$

Area of triangle =  $(\sqrt{33.2^2 - 15.88^2})(15.88)$   
Area of circle:  $33.2^2\pi$ .  
Shaded area = area of circle minus area of triangle.

**62.**  $V = \frac{1}{3}\pi r^2 h$   
 $7251 = \frac{1}{3}\pi(2.9x)^2(3.4x)$   
 $7251 = \frac{1}{3}\pi(28.594)x^3$   
 $x = \sqrt[3]{\frac{7251(3)}{28.594\pi}}$

**71.** 21 ft. = 252 in. = diameter. Radius = 126 in.  
16 ft = 192 in.  
Volume =  $\pi r^2 h = \pi(126)^2(192)$   
 $231 \text{ in}^3 = 1 \text{ gal}$ . Volume  $\div 231$

**72.**  $\frac{5}{31}$  Five ways to get an 8, 31 ways to not get an 8.

**73.** Area of a regular polygon  
 $\frac{\text{perimeter}^2}{\left(\tan \frac{180}{n}\right)(4n)}$   
 $\frac{27759^2}{\left(\tan \frac{180}{8}\right)(32)}$

**74.** Large square =  $5.25^2$   
Medium square =  $(5.25 - 1.2)^2$   
Small square =  $2.85^2$ .  
Shaded area = large - medium + small square.