Dr Numsen – High School Calculator Applications
Practice Test – M-4

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1: (26 / 118) + 0.355 ..... **1=**_____

2: (0.0325 + 0.091) × (0.0776) − 0.00425 ..... **2=**_____

3: (8.8 + 1.72 + 825) / (3.22) + 956 ..... **3=**_____

4: $\dfrac{(97400 - 165)}{\{(75600) - (-81900)\}} + (-4.81 - 3.98)$ ..... **4=**_____

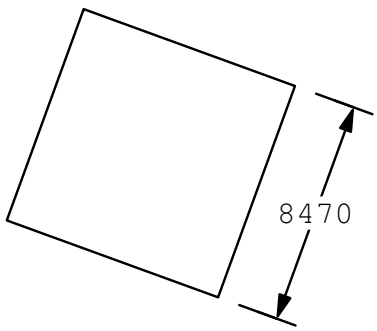
5: $80.4 - 728 - 7940 + \dfrac{(-4270 - 40.1)}{(-4.78)(4.38)}$ ..... **5=**_____

6: Subtract 4π minus $\sqrt{\pi}$. ..... **6=**_____

7: Find x when $3x - (4.1)^2 = x$. ..... **7=**_____

8: Calculate the value of q so that Ln(q) equals 0.163. ..... **8=**_____

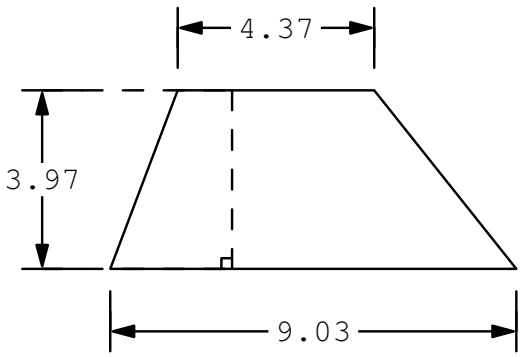
9. SQUARE



PERIMETER = ?

9. _____

10. TRAPEZOID



AREA = ?

10. _____

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11: $\dfrac{(-689)(2000) + (-8100)(908) - 6840}{5630 - (57.2)(2.63)}$ ..... **11=**_____

12: $\dfrac{(0.0931)(0.000154) + (-0.00801 - 0.049)(0.000134)}{(0.00162 - 0.0742 + 0.00457)(-0.00357)}$ ..... **12=**_____

13: $\dfrac{7.69\times10^{-3} + 3.95\times10^{-3}}{(1940)(-0.307) - 897} - \dfrac{9670 - 99.2 - 8770}{(-2.21\times10^{2})(83.8)}$ ..... **13=**_____

14: $\dfrac{0.696}{0.662} + \dfrac{-83.6 + 0.749 - 56}{0.995 - 0.776} + \dfrac{(2.46 + \pi)}{\{(3.3\times10^{3}) \;/\; (93.9)\}}$ ..... **14=**_____

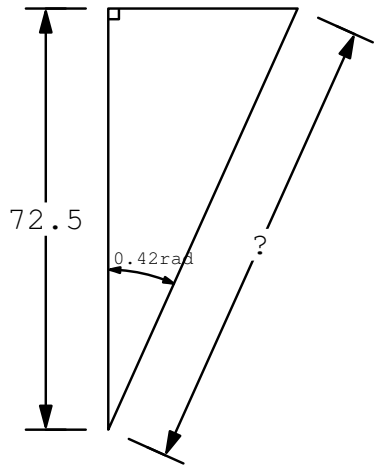
15: $\dfrac{(7.64 - 8.24 + 18.3)(13.8 + 3.56 - 4.14)}{(-17.7)(976)(-435)(552 - 672 + 81.3)}$ ..... **15=**_____

16: What obtuse angle is formed by the hands of a clock at exactly 3:40? ..... **16=**_____deg

17: Burgers cost \$4.29 each; fries cost \$2.19 each; sodas cost \$1.69 each. How much will five burgers, three fries, and four sodas cost after 8.25% sales tax? ..... **17=**\$_____

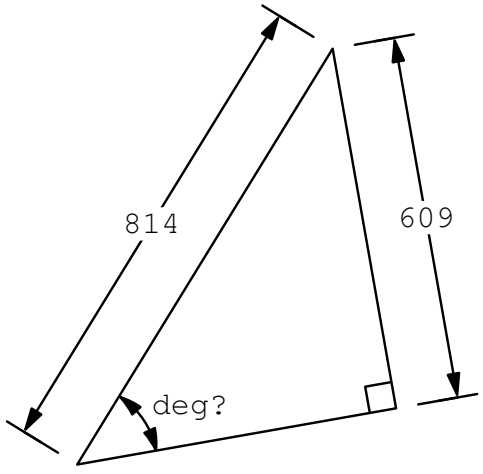
18: The center section of a theater forms a V-shaped area. The first row of the section contains 15 seats. The number of seats in a row increases by two seats for each row behind (i.e., second row has 17, third row has 19, etc.). The section contains 24 rows total. How many seats are in the section? ..... **18=**_____integer

19. RIGHT TRIANGLE



19. _____

20. RIGHT TRIANGLE



20. _____

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21: $\left[\dfrac{\sqrt{620 + 4230}}{7820} - \dfrac{(5690)}{-95200}\right]^2$ ..... **21=**_____

22: $\dfrac{-0.592 + 1/(0.0839)}{1/(0.85) + 0.505} - \dfrac{1}{(8.21)}$ ..... **22=**_____

23: $(17.1)(8.8) - \sqrt{(70.5) \times (735)} + [(7.2)(-6.53)]^2$ ..... **23=**_____

24: $\left[\dfrac{3410 + 892 - \sqrt{\pi / 33.5}}{-224 + 41.4}\right]^2$ ..... **24=**_____

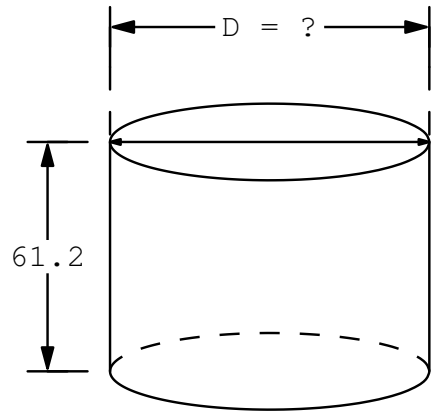
25: $(9.93)(-5.38)\sqrt{(-2.37)^2 / 98.7} + 1/\sqrt{1.42 + 2.27}$ ..... **25=**_____

26: A chord spans a circle of radius 8.54 cm. From a fixed point on the circle which denotes 0^o, the endpoints of the chord relative to the circle and this point are located at 56^o and 278^o, going counterclockwise around the circle. What is the length of the chord? ..... **26=**_____ cm

27: A bicyclist rode 1.21 mi in 6 minutes 45 seconds. What was his average rate of speed? ..... **27=**_____ mph(SD)

28: A quarterback throws the football with a release point 7 feet above ground at an angle of 20^o relative to the ground at 31 mph. He adds a spiral to the ball so that it is rotating at 24.8 rad/s. How many times has the football rotated by the time it reaches the receiver who will catch it 8 feet in the air, downfield? [The ball travels for more than a half-second.] ..... **28=**_____ rotations

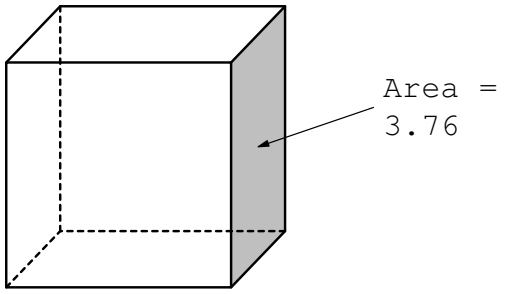
29. CYLINDER



VOLUME = 116000

29. _____

30. CUBE



VOLUME = ?

30. _____

31: $\sqrt{\dfrac{1/(6920 + 550)}{(95300)(0.0315 - 0.0755)^2}} - (2.6)^2\left(9.69 \times 10^1\right)$ ..... **31=**_____

32: $\left[\dfrac{-9.74 \times 10^{-5}}{-2.7 \times 10^{-5} + 0.00307} + 2.28\right] \times \left\{0.0682 - (0.0681)^2 + \sqrt{2.23 \times 10^{-5}}\right\}$ **32=**_____

33: $\dfrac{\left[\left(2.14 \times 10^{-6} + 5.94 \times 10^{-6}\right)(82.6 / 80.6)\right]^{1/2}}{(6.65)^2 + (30.4 - 0.965)^2 + 0.58}$ ..... **33=**_____

34: $\dfrac{(0.538)^2 - \sqrt{0.0886}}{\sqrt{(0.356)(0.0645)^2}} + \dfrac{\sqrt{\sqrt{(0.0761)(0.0732)}}}{0.0683 - 0.435}$ ..... **34=**_____

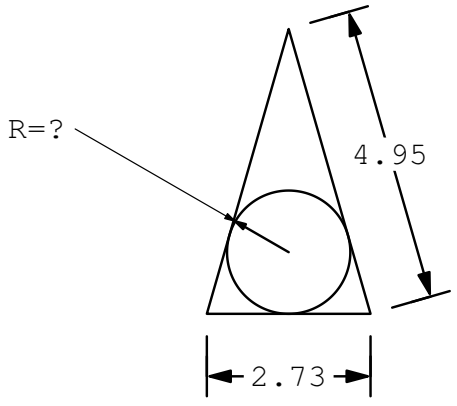
35: $\dfrac{(0.9 + 1.09)^2 + (18 + 33.2)^2}{\sqrt{(8.47)(5.99)(-17.2 - 6.37 - 0.526)^2}}$ ..... **35=**_____

36: The borders of the state of Colorado are (basically) defined by "parallel" longitudes and latitudes, forming a "rectangle". The northern and southern boundaries run from 102° W to 109° W while the eastern and western boundaries run from 37° N to 41° N. Assuming the earth is spherical, find the percent difference between the northern border length and the southern border length. ..... **36=**_____ %

37: A conductor cannot keep the beat and is constantly accelerating through a piece of music. He started the piece at 88 beats per minute and finished it 3 minutes 20 seconds later at 96 beats per minute. The time signature is 4/4 (meaning there are 4 beats per measure). How many measures were in the piece? ..... **37=**_____ measures

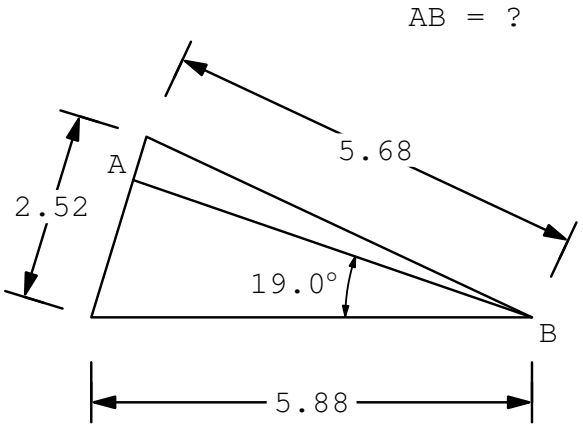
38: Calculate $\left[391{,}393^{(-7231)}\right] \times \left[391{,}393^{(-5812)}\right]$. ..... **38=**_____

39. ISOSCELES TRIANGLE



39. _____

40. SCALENE TRIANGLE



40. _____

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41: $10^{\{(-2.57 + 1.25) \,/\, (1.72 - 0.605)\}}$ ..... **41=**_____

42: $\dfrac{e^{6.49} - e^{7.1}}{(0.856 + 0.0629)}$ ..... **42=**_____

43: $\left(3.42 \times 10^5\right) \text{Log}\left\{\left(5.81 \times 10^5\right)(0.0988 + 1/0.0204)\right\}$ ..... **43=**_____

44: $(0.679)^3 - (0.0914 + 0.501)^{0.0364}$ ..... **44=**_____

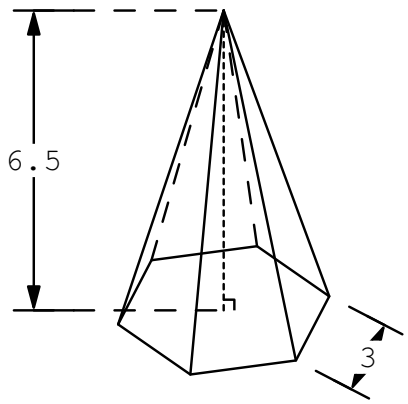
45: (deg) $\dfrac{\cos\{(37^\circ) \,/\, (0.0667)\}}{\sin\{1^\circ + 184^\circ\}}$ ..... **45=**_____

46: At an arts and craft store, patrons paint ceramics which are later fired in a kiln. A 4-in tall ceramic penguin requires 2.34 oz of paint. How much paint is needed for a 2.5-ft tall penguin? ..... **46=**_____ oz

47: A basketball player makes shots with the following percentages, starting 4 feet from the basket and in 4 feet increments: 98%, 92%, 83%, 78%, 65%, 43%. Using the line of best fit, what percent of his shots should a player make from 18 ft away? ..... **47=**_____ %

48: (rad) Find x, $0 < x < 1$, when $\sin(3x)\cos(x^2) = x(x^2+1)^{-1}$. .... **48=**_____

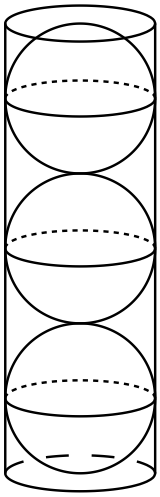
49. PYRAMID WITH REGULAR HEXAGONAL BASE



VOLUME = ?

49. _____

50. CYLINDER AND SPHERES



$\dfrac{\text{Cylinder Volume}}{\text{Single Sphere Volume}} = ?$

50. _____

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51: $\dfrac{(-0.753)10^{(0.763\ +\ 0.304)}}{6.52\ +\ 0.529}$ ..... **51=**_____

52: $\dfrac{1\ +\ e^{\{-1.25\ -\ (-8.95)(-0.106)\}}}{(5.31\times 10^{7})(58\ -\ e^{(0.952)})}$ ..... **52=**_____

53: $\dfrac{\mathrm{Log}\{0.00418\ -\ (0.0598)(-0.000108)\}}{-0.000314\ -\ \mathrm{Log}\{(0.00056)\ /\ (0.000377)\}}$ ..... **53=**_____

54: $\dfrac{(53000\ +\ 800)^{0.787}}{(8.41)^{-(0.801\ +\ 0.671)}}$ ..... **54=**_____

55: (rad) $\dfrac{\arcsin\{0.405\ +\ (-0.157)(4.88)\}}{\arcsin\{(-8.75\ +\ \pi)\ /\ 5.74\}}$ ..... **55=**_____

56: The area bounded by the curve $y=\frac{1}{3}x^2$ and the x-axis is 300 between $x=b$ and $x=b+5$. Find b, a number greater than 0. ..... **56=**_____

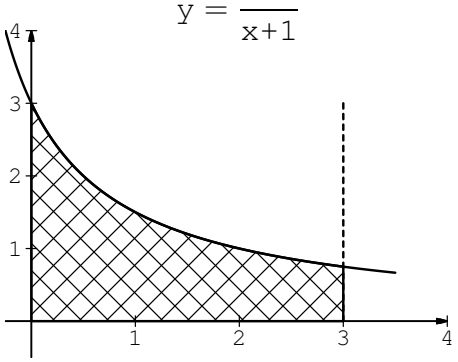
57: What is the volume of the largest right circular cylinder that can be inscribed in a sphere whose radius is 3 cm? ..... **57=**_____ cm^3

58: Find the value of q so that the determinant of $\begin{bmatrix} q & -3 & 4 \\ 7 & 3 & 1-q \\ 9 & -4 & 8 \end{bmatrix}$ is as small as possible. ..... **58=**_____

59. SOLID OF REVOLUTION

Axis: x=3

$$y=\frac{3}{x+1}$$

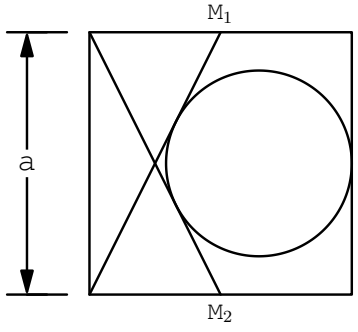


Volume = ?

59. _____

60. SQUARE AND CIRCLE

Circle is tangent to segments



M_1 and M_2 are midpoints $\frac{a}{\text{Radius}}$ = ?

60. _____

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61: $10^{0.708} \times \sqrt{\dfrac{\left(10^{0.361}\right)\left(10^{0.225}\right)}{\left(10^{-0.229}\right)\left(10^{0.651}\right)}}$ ..... **61=**_____

62: $(7.44 - 6.73)^2 - (13.2 + 3.79)e^{\text{Ln}(94.7)}$ ..... **62=**_____

63: (rad) $\dfrac{1}{(-1.34)(-0.742)}\text{Ln}\{(-0.00185) + (0.617)\cos(0.0449)\}$ ..... **63=**_____

64: $1 + 0.591 + \dfrac{(0.591)^2}{2} + \dfrac{(0.591)^3}{6} + \dfrac{(0.591)^4}{24}$ ..... **64=**_____

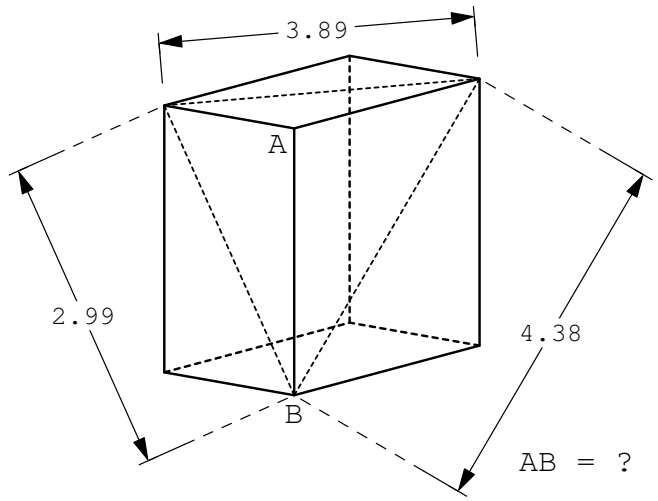
65: (rad) $\dfrac{\arcsin\left\{e^{-(4.09)(0.314)\sqrt{(-4590)\ /\ (-821000)}}\right\}}{(60400)\sqrt{(-199000)(80600)(-28700)}}$ ..... **65=**_____

66: Brad left Kerrville on Highway 16 driving to San Saba, 95 mi away, at 48 mph. Brandon left San Saba 15 min after Brad left, driving to Kerrville on the same highway. If they met in Llano which is 32 miles from San Saba, what was Brandon's velocity? ..... **66=**_____ mph

67: A parachute is designed to automatically deploy when the freefall velocity reaches 60 mph. At what elevation should a plane fly if the parachute opens at 12,000 ft? ..... **67=**_____ ft

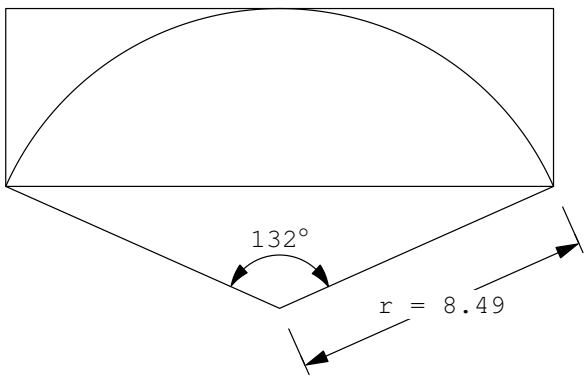
68: A naval electric gun can be designed to fire a projectile at Mach 6, reaching a maximum vertical height of 240,000 ft. What is the maximum horizontal range of the projectile? The Mach number is the projectile velocity divided by the speed of sound, 1116 ft/s. ... **68=**_____ mi

69. RECTANGULAR SOLID



69. _____

70. SECTOR AND RECTANGLE



70. _____