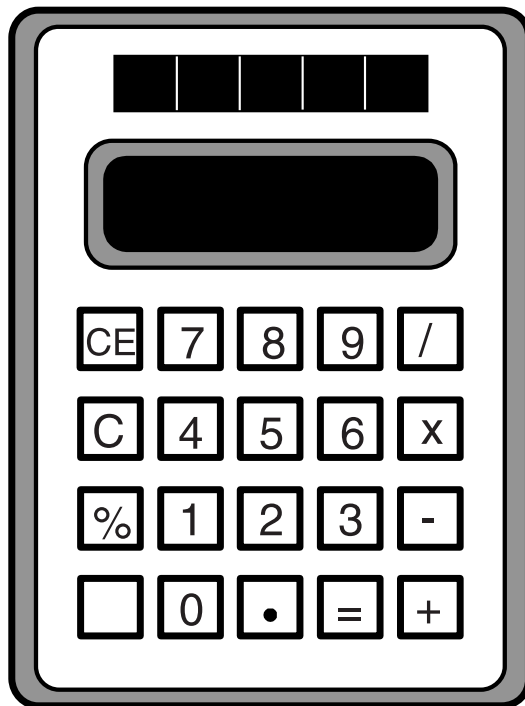


**FALL/WINTER DISTRICT 2013-2014**

**A+ ACADEMICS**



University Interscholastic League



# Calculator Applications

**DO NOT OPEN TEST  
UNTIL TOLD TO DO SO**

**2013 - 2014 UIL MS/JH Calculator Test B**

14T-1.  $\pi + 4.08$  ----- 1= \_\_\_\_\_

14T-2.  $87 - 9 + 50$  ----- 2= \_\_\_\_\_

14T-3.  $839 - 4320 + 3900$  ----- 3= \_\_\_\_\_

14T-4.  $34 - \pi - 12 - 4$  ----- 4= \_\_\_\_\_

14T-5.  $-830 + 219 - 1020 - 815$  ----- 5= \_\_\_\_\_

14T-6.  $30.8 - 87 - 21.1 + 92 + 74.4$  ----- 6= \_\_\_\_\_

14T-7.  $1.69 + 0.775 - 0.314 + 0.53 + 1.14$  ----- 7= \_\_\_\_\_

14T-8.  $0.949 - 0.768 + 1.67 - 0.692 - \pi$  ----- 8= \_\_\_\_\_

14T-9.  $98.8 \times 326 \times 100$  ----- 9= \_\_\_\_\_

14T-10.  $28.6 \times 6610 \times 1160 \times 136$  ----- 10= \_\_\_\_\_

14T-11. If the product of a number and two-pi is 65 million 4 hundred thousand, what is that number? ----- 11= \_\_\_\_\_

14T-12. One day I spilled some syrup on the porch floor outside the house. A minute later I counted 5 ants eating the syrup. Another minute later I counted 15 ants and after five minutes I counted a total of 103 ants at the pool of syrup. On average, how many ants showed up to eat syrup each minute? ----- 12= \_\_\_\_\_ ants/min

14T-13. If the Zapatas use 750 kilo-Watt-hours of electricity in 30 days, on average how many Watts of electricity do they use each hour? ----- 13= \_\_\_\_\_ Watts

- 14T-14.  $-623 - [358/695 + 1.18]$  ----- 14= \_\_\_\_\_
- 14T-15.  $(-432/410)[178 - 720]$  ----- 15= \_\_\_\_\_
- 14T-16.  $(-101 + 24)[92 - 75 - 96]$  ----- 16= \_\_\_\_\_
- 14T-17.  $\frac{66}{77} [(30/48) + 0.0644]$  ----- 17= \_\_\_\_\_
- 14T-18.  $\frac{(79/62) + (30/87)}{(0.188 - 0.819)}$  ----- 18= \_\_\_\_\_
- 14T-19.  $\left[ \frac{(1000/406) - (685/1480)}{164/177} \right]$  ----- 19= \_\_\_\_\_
- 14T-20.  $\frac{79}{(77 - 94)} - \frac{(50 - 115)}{54}$  ----- 20= \_\_\_\_\_
- 14T-21.  $(349)[142/32 \times 18/101] - 96$  ----- 21= \_\_\_\_\_
- 14T-22.  $\frac{(434 \times 548)/1030}{(899 \times 0.351) + 32.2}$  ----- 22= \_\_\_\_\_
- 14T-23.  $\frac{(0.377 + 0.312 - 0.424)}{\{(9360 - 2740)/6.95\}}$  ----- 23= \_\_\_\_\_
- 14T-24. Dan and Francis were planning to travel from Fort Worth to San Diego, California and back for a vacation. They budgeted \$7/meal for 21 meals per person, \$750 for fuel, \$500 for motel stay and \$400 for entertainment. What is the cost of their vacation? ----- 24= \$ \_\_\_\_\_
- 13B-25. When an object is traveling under constant uniform acceleration, the distance it travels during that acceleration is equal to the product of its average speed and time during that acceleration. If a car is advertised to go from zero to 60 miles per hour in 5 seconds, assuming uniform acceleration, how far does that car travel during that time interval? ----- 25= \_\_\_\_\_ ft
- 14T-26. In 1994 the season attendance for the Texas Rangers baseball team was 2,503,198. In 2012 the season attendance was 3,460,280. What percent per year increase did this represent? ----- 26= \_\_\_\_\_ %/yr

14T-27.  $\frac{(0.0149 - 0.0842)(0.062 + 0.03)}{(1.01 \times 10^{12})}$  ----- 27= \_\_\_\_\_

14T-28.  $\frac{(2.05 \times 10^9) + (1.51 \times 10^9)}{(-0.0419)(0.0386) - (8.79 \times 10^{-4})}$  ----- 28= \_\_\_\_\_

14T-29.  $29[(0.187/0.187)(0.00993 + 0.0129)]$  ----- 29= \_\_\_\_\_

14T-30.  $[151] \left[ \frac{1/76.5}{1/342} \right]$  ----- 30= \_\_\_\_\_

14T-31.  $\frac{(8.74 + \pi)}{(1.80 \times 10^{12})}$  ----- 31= \_\_\_\_\_

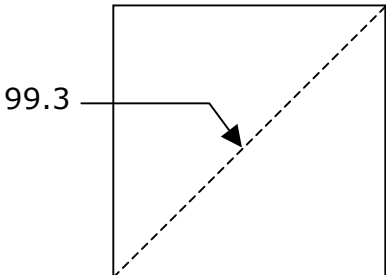
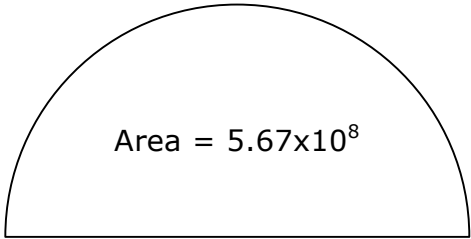
14T-32.  $\frac{1}{11.1} + \frac{1}{(\pi)(23.1 - 19.3)}$  ----- 32= \_\_\_\_\_

14T-33.  $\frac{1}{133} - \frac{1}{(445 + 434)}$  ----- 33= \_\_\_\_\_

14T-34.  $\left[ \frac{1/179}{1/76.5} \right] [6.19 \times 10^5]$  ----- 34= \_\_\_\_\_

14T-35. It was recently discovered that Cheetahs in a zoo-like environment can be coaxed to run with speeds in a straight line up to 29 meters/second. How fast is this in miles per hour?----- 35= \_\_\_\_\_ mph

14T-36. My rain-barrels hold 55 gallons of water when filled. What is the least number of rain-barrels of water that I need to water a 25 foot by 40 foot rectangular piece of lawn one-fourth inch deep? ----- 36= \_\_\_\_\_ brl(Integer)

<p>14T-37.</p> <p style="text-align: center;">SQUARE</p>  <p style="text-align: center;">Perimeter of Square = ?</p> <p>14T-37= _____</p>	<p>14T-38.</p> <p style="text-align: center;">SEMICIRCLE</p>  <p style="text-align: center;">Area = <math>5.67 \times 10^8</math></p> <p style="text-align: center;">Diameter = ?</p> <p>14T-38= _____</p>
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14T-39.  $(0.0646 + 0.366)^2(0.335 + 0.162)^2$  ----- 39= \_\_\_\_\_

14T-40.  $(17.2 + 9.89 + 28)^2(3.21 + 3.54)^2$  ----- 40= \_\_\_\_\_

14T-41.  $\sqrt[4]{\frac{5.71 + 4.96}{0.0484 - 0.0296}}$  ----- 41= \_\_\_\_\_

14T-42.  $(1/0.00443)(1.88 \times 10^5 - 1.01 \times 10^5)^2$  ----- 42= \_\_\_\_\_

14T-43.  $(2800)\sqrt{1900 + 464 + 1850}$  ----- 43= \_\_\_\_\_

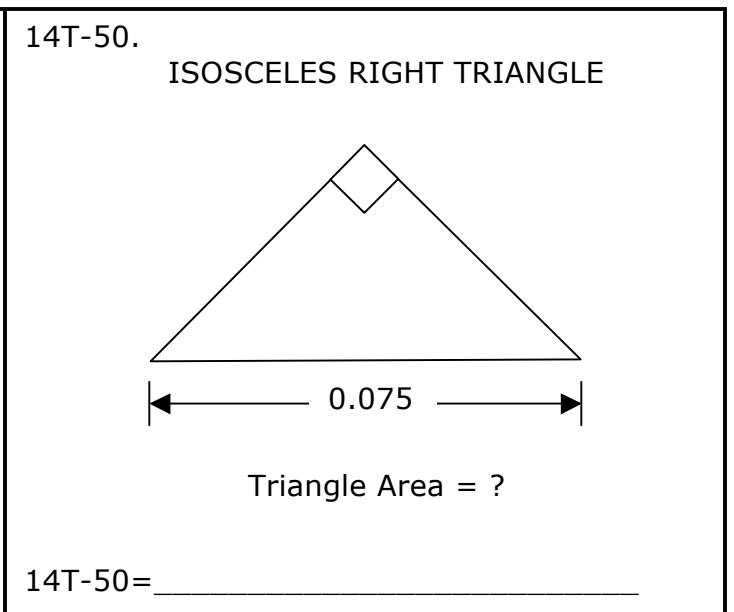
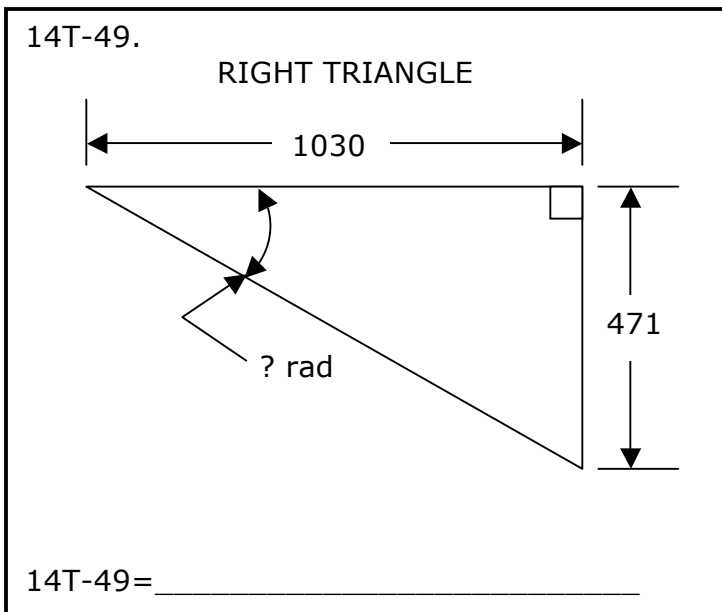
14T-44.  $\sqrt{7020 - 6060 + 1250} - \sqrt{3080}$  ----- 44= \_\_\_\_\_

14T-45.  $\frac{(22.5 + 39.9)^{1/4}}{(3340 - 2500)^{1/3}}$  ----- 45= \_\_\_\_\_

14T-46.  $\frac{1}{\sqrt{295 + 170 + 484}} + \left(\frac{1}{\sqrt{16}}\right)^2$  ----- 46= \_\_\_\_\_

14T-47. The river that runs through the Grand Canyon in Arizona is the Colorado River. The canyon is 277 miles long, an average of 10 miles wide and an average of one mile deep. If the water erosion created this canyon over 20 million years, what volume of earth was removed each year on average by water erosion? ----- 47= \_\_\_\_\_ ft<sup>3</sup>/yr

14T-48. A Chevy Volt car battery takes 12.7 Kilowatt-Hours (KWH) of energy to be fully charged and can travel 25 miles. If electricity costs 11.5 cents/KWH, what is the cost to travel on a fully charged car battery? -- 48= \_\_\_\_\_ ¢/mi



14T-51.  $\left[ \frac{\sqrt{\sqrt{2.17 - 0.871}}}{-(15200 - 32800)} \right]^2 [0.31 + 0.352] \text{ ----- } 51 = \underline{\hspace{2cm}}$

14T-52.  $\frac{(74.2 + 23.5 - 79.2)^4}{\sqrt{72600 + 65300 + (1.29 \times 10^5)}} \text{ ----- } 52 = \underline{\hspace{2cm}}$

14T-53.  $\sqrt{\frac{1.49 \times 10^{-4}}{(872)(9.96)}} + \frac{(16 - 13.7)}{(5590 + 4250)} \text{ ----- } 53 = \underline{\hspace{2cm}}$

14T-54.  $27000 + \sqrt{(13100)(34600)} - (9790 + 52600) \text{ ----- } 54 = \underline{\hspace{2cm}}$

14T-55.  $0.0252(2.22 \times 10^{10})^{1/4} - [(8.29)(10.9)]^{1/2} \text{ ----- } 55 = \underline{\hspace{2cm}}$

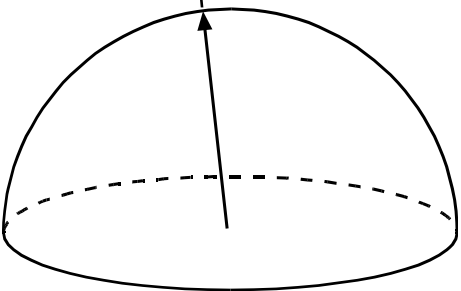
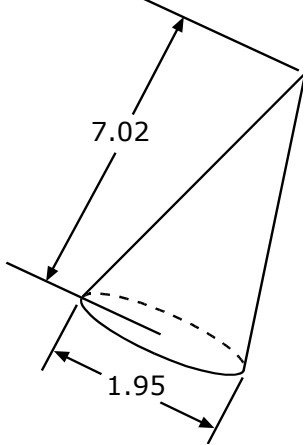
14T-56.  $(95.5)^2 \sqrt{(6.95)/(1.63)} - (2760 + 16200) \text{ ----- } 56 = \underline{\hspace{2cm}}$

14T-57.  $\sqrt{\frac{(10.4)(172)}{(1720) + (1170)}} - 2.1 \text{ ----- } 57 = \underline{\hspace{2cm}}$

14T-58.  $(\text{deg}) \sin(285^\circ) + (2.87/3.81) \text{ ----- } 58 = \underline{\hspace{2cm}}$

14T-59. A 12-ft ladder has rungs that are 10 inches apart, starting with the first rung located 10 inches from the end. If this ladder is leaned against a building wall so that the base of the ladder is 4 feet from the wall, what is the vertical distance from the fifth rung on the ladder to the ground below? ----- 59 =                      ft

14T-60. If the radius of the earth is 3960 miles, the International Space Station (ISS) is currently 217 miles above the earth and traveling at an average speed of 16,850 miles per hour, how long does it take the ISS to circle the earth once? ----- 60 =                      min

<p>14T-61.</p> <p style="text-align: center;">HEMISPHERE</p> <p style="text-align: center;">R = 5.20</p>  <p style="text-align: center;">Volume = ?</p> <p>14T-61 = _____</p>	<p>14T-62.</p> <p style="text-align: center;">RIGHT CONE</p>  <p style="text-align: right;">Volume = ?</p> <p>14T-62 = _____</p>
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14T-63.  $\frac{5!/3!}{8! + 10!}$  ----- 63 = \_\_\_\_\_

14T-64. (deg)  $(11.5 - 7.39)\tan(21.1^\circ)$  ----- 64 = \_\_\_\_\_

14T-65. (deg)  $\frac{\sin(57.3^\circ)}{1210}$  ----- 65 = \_\_\_\_\_

14T-66. (rad)  $\frac{\tan(15.1)}{2100/95.2}$  ----- 66 = \_\_\_\_\_

14T-67. (deg)  $(105 - 248)\tan(347^\circ) + 14.7$  ----- 67 = \_\_\_\_\_

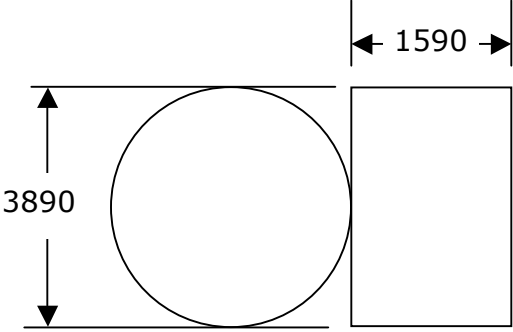
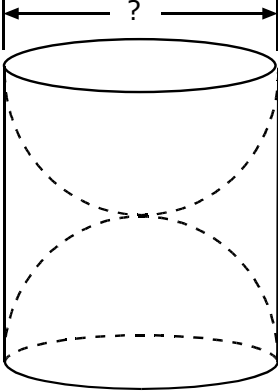
14T-68. (rad)  $(17)\sin(207)$  ----- 68 = \_\_\_\_\_

14T-69. (deg)  $\frac{\sin(28.4^\circ) - \tan(28.4^\circ)}{\sin(28.4^\circ)}$  ----- 69 = \_\_\_\_\_

14T-70.  $(415 - 252)^{0.474 - 0.511}$  ----- 70 = \_\_\_\_\_

14T-71. A teenager is doing "donuts" with his parent's car in the parking lot. The inner diameter of the donut was 16 feet. If the driver did three donuts and the distance between the 30-inch tall front wheels is 61.6 inches, how many more revolutions did the outer wheel turn than the inner wheel? ----- 71 = \_\_\_\_\_ rev

14T-72. A ream of 500 sheets of paper listed the following property of the paper on the packaging: 90 grams/m<sup>2</sup>. With this information what would be the mass of 250 sheets of paper that measures 8 1/2 inch by 11 inches? (Assume only one side of the paper is used to calculate the area.) ----- 72 = \_\_\_\_\_ grams

<p>14T-73.</p> <p style="text-align: center;">CIRCLE &amp; RECTANGLE</p>  <p style="text-align: center;">Total Area = ?</p> <p>14T-73= _____</p>	<p>14T-74.</p> <p style="text-align: center;">CYLINDER &amp; CONGRUENT HEMISPHERES</p>  <p style="text-align: center;">Total Surface Area = 100</p> <p>14T-74= _____</p>
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14T-75.  $\frac{\text{Log}(5660 + 10900)}{55400 - 24300}$  ----- 75= \_\_\_\_\_

14T-76.  $\text{Ln}\left[\frac{106 + 194 + 362}{951 + 850 - 778}\right]$  ----- 76= \_\_\_\_\_

14T-77.  $(15600)10^{(0.763)(7.26)}$  ----- 77= \_\_\_\_\_

14T-78.  $\frac{(e^{0.748})(e^{0.174})(e^{0.126})}{\text{Ln}(11 + 10.5)}$  ----- 78= \_\_\_\_\_

14T-79.  $4 + 6 + 8 + \dots + 328$  ----- 79= \_\_\_\_\_

14T-80.  $-\frac{1}{(4)} + \frac{1}{3(4)^3} - \frac{1}{5(4)^5} + \frac{1}{7(4)^7}$  ----- 80= \_\_\_\_\_



### 2013 - 2014 UIL MS/JH Calculator Test B – Answer Key

14T-1	= 7.22 = $7.22 \times 10^0$	14T-14	= -625 = $-6.25 \times 10^2$	14T-27	= $-6.31 \times 10^{-15}$
14T-2	= 128 = $1.28 \times 10^2$	14T-15	= 571 = $5.71 \times 10^2$	14T-28	= $-1.43 \times 10^{12}$
14T-3	= 419 = $4.19 \times 10^2$	14T-16	= 6080 = $6.08 \times 10^3$	14T-29	= 0.662 = $6.62 \times 10^{-1}$
14T-4	= 14.9 = $1.49 \times 10^1$	14T-17	= 0.591 = $5.91 \times 10^{-1}$	14T-30	= 675 = $6.75 \times 10^2$
14T-5	= -2450 = $-2.45 \times 10^3$	14T-18	= -2.57 = $-2.57 \times 10^0$	14T-31	= $6.60 \times 10^{-12}$
14T-6	= 89.1 = $8.91 \times 10^1$	14T-19	= 2.16 = $2.16 \times 10^0$	14T-32	= 0.174 = $1.74 \times 10^{-1}$
14T-7	= 3.82 = $3.82 \times 10^0$	14T-20	= -3.44 = $-3.44 \times 10^0$	14T-33	= 0.00638 = $6.38 \times 10^{-3}$
14T-8	= -1.98 = $-1.98 \times 10^0$	14T-21	= 180 = $1.80 \times 10^2$	14T-34	= 265000 = $2.65 \times 10^5$
14T-9	= $3.22 \times 10^6$	14T-22	= 0.664 = $6.64 \times 10^{-1}$	14T-35	= 64.9 = $6.49 \times 10^1$
14T-10	= $2.98 \times 10^{10}$	14T-23	= 0.000278 = $2.78 \times 10^{-4}$	14T-36	= 3 (Integer)
14T-11	= $1.04 \times 10^7$	14T-24	= 1944.00	14T-37	= 281 = $2.81 \times 10^2$
14T-12	= 20.6 = $2.06 \times 10^1$	14T-25	= 220 = $2.20 \times 10^2$	14T-38	= 38000 = $3.80 \times 10^4$
14T-13	= 1040 = $1.04 \times 10^3$	14T-26	= 2.12 = $2.12 \times 10^0$		

**2013 - 2014 UIL MS/JH Calculator Test B – Answer Key**

14T-39	= 0.0458 = $4.58 \times 10^{-2}$	14T-51	= $2.44 \times 10^{-9}$	14T-61	= 294 = $2.94 \times 10^2$	14T-73	= $1.81 \times 10^7$
14T-40	= 138000 = $1.38 \times 10^5$	14T-52	= 227 = $2.27 \times 10^2$	14T-62	= 6.99 = $6.99 \times 10^0$	14T-74	= 3.99 = $3.99 \times 10^0$
14T-41	= 4.88 = $4.88 \times 10^0$	14T-53	= 0.000365 = $3.65 \times 10^{-4}$	14T-63	= $5.45 \times 10^{-6}$	14T-75	= 0.000136 = $1.36 \times 10^{-4}$
14T-42	= $1.71 \times 10^{12}$	14T-54	= -14100 = $-1.41 \times 10^4$	14T-64	= 1.59 = $1.59 \times 10^0$	14T-76	= -0.435 = $-4.35 \times 10^{-1}$
14T-43	= 182000 = $1.82 \times 10^5$	14T-55	= 0.221 = $2.21 \times 10^{-1}$	14T-65	= 0.000695 = $6.95 \times 10^{-4}$	14T-77	= $5.40 \times 10^9$
14T-44	= -8.49 = $-8.49 \times 10^0$	14T-56	= -128 = $-1.28 \times 10^2$	14T-66	= -0.0315 = $-3.15 \times 10^{-2}$	14T-78	= 0.930 = $9.30 \times 10^{-1}$
14T-45	= 0.298 = $2.98 \times 10^{-1}$	14T-57	= -1.31 = $-1.31 \times 10^0$	14T-67	= 47.7 = $4.77 \times 10^1$	14T-79	= 27100 = $2.71 \times 10^4$
14T-46	= 0.0950 = $9.50 \times 10^{-2}$	14T-58	= -0.213 = $-2.13 \times 10^{-1}$	14T-68	= -5.75 = $-5.75 \times 10^0$	14T-80	= -0.245 = $-2.45 \times 10^{-1}$
14T-47	= $2.04 \times 10^7$	14T-59	= 3.93 = $3.93 \times 10^0$	14T-69	= -0.137 = $-1.37 \times 10^{-1}$		
14T-48	= 5.84 = $5.84 \times 10^0$	14T-60	= 93.5 = $9.35 \times 10^1$	14T-70	= 0.828 = $8.28 \times 10^{-1}$		
14T-49	= 0.429 = $4.29 \times 10^{-1}$			14T-71	= 12.3 = $1.23 \times 10^1$		
14T-50	= 0.00141 = $1.41 \times 10^{-3}$			14T-72	= 1360 = $1.36 \times 10^3$		