Isotherms Algebra 1
September 1998

List the team members:

_____   _____   _____
_____   _____   _____
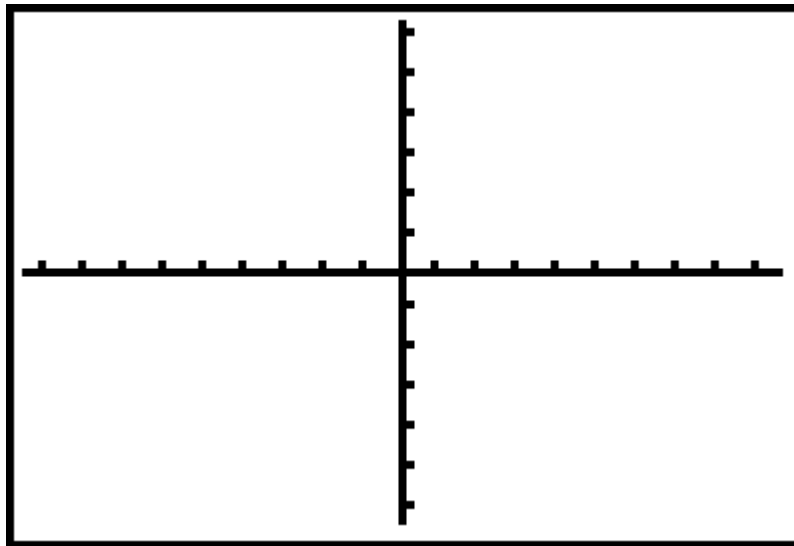
Equipment:
- CBL (Calculator Based Lab)
- TI-83
- Temperature Probe
- CBR with CBL to CBR cable
- Meterstick
- ISOTHERM.83p program

I. Sketch the room on the following grid in the appropriate Quadrant. Indicating landmarks and the position of the origin as decided in class.

II. Place the CBL in Multimeter mode by pressing the **M** key and then pressing **0** until you get the SONIC channel reading in meters. Plug the CBR into the Sonic port, and the Temperature probe in CH1.

III. From your team's assigned area, get your X-position, Y-position, and your temperature in Celsius (1 meter above the floor) for three different positions, about a meter apart in your area. Make sure that you hold the CBR in the same position for the measure of the x and y distances (at any height) and that you are "bouncing" the signal off of a "good" part of the wall that is the x-axis, and y-axis. Use **0** to switch over to measuring temperature in degrees Celsius from CH1.

IV. Mark on your map above, in Part I, the approximate location of your three points.

V. Record these values in a set of lists named $_LX$, $_LY$ and $_L$TEMP in your calculator, and on the chart below. Use L_1, L_2, and L_3 if you are using a TI-82. Round the Temperature values to the whole degree.

X	Y	TEMP 1
1	2	25
1.25	2.5	25
1.33	3	26
2.5	1	27
3.05	1.75	28
3.35	2.25	27
4.12	2	25

X(1) = 1

X	Y	TEMP

VI. Collect the values from the other teams to complete your table in part IV and the lists in your calculator.

VII. Link with your other team members and send them the three lists.

VIII. Plot the locations of the (X,Y) points on the calculator. Use **q** **®** to set the graph. Save this image as PIC 3 (press **y** [DRAW] | **À Â Í**) and print it from the computer. Include the WINDOW with the print out. Identify your three points on this graph printout.

```
Plot1  Plot2  Plot3
On  Off
Type: ▩ ╱ ▥
      ╍ ▥ ╱
Xlist:X
Ylist:Y
Mark: □ ■ ·
```

```
WINDOW
 Xmin=0
 Xmax=4.432
 Xscl=1
 Ymin=0
 Ymax=3.34
 Yscl=1
 Xres=1
```

IX. Run the ISOTHERM.83p program. Print this graph and mark on it your three points again. Connect the lines of equal temperature (Isotherms).

X. Have each person in the group email me at least one of these products.
dayoung@ecs1.nwsc.k12.ar.us.