

## Temperature Scatterplot Lab

**Overview:** The purpose of this lab is to create a scatterplot comparing monthly temperatures for two locations. Once the scatterplot is complete, students will analyze the data to see if there is a correlation, and if so, create a line of best fit. Finally, this line of best fit will be used to answer a set of questions.

**Data:** There are many sources of data, here is one recommended site: <http://www.wunderground.com/> In the upper right corner you can select Fahrenheit or Celsius temperatures. Under the tab that says, "Weather," you should choose "Airport Weather History." You can then submit location and time information. Use the most recent complete year, and choose the "max temp" row and the "avg" column (see below).

### **Weather History for Ithaca, NY** Month of January, 2012 — [View Current Weather Conditions](#)

Month of January, 2012						
« Previous Month	January	1	2012	View	Next Month »	
Daily	Weekly	<b>Monthly</b>	Custom			
			Max	Avg	Min	Sum
Temperature						
	Max Temperature		56 °F	35 °F	10 °F	
	Mean Temperature		44 °F	27 °F	4 °F	
	Min Temperature		34 °F	19 °F	-2 °F	

You should complete the table below.

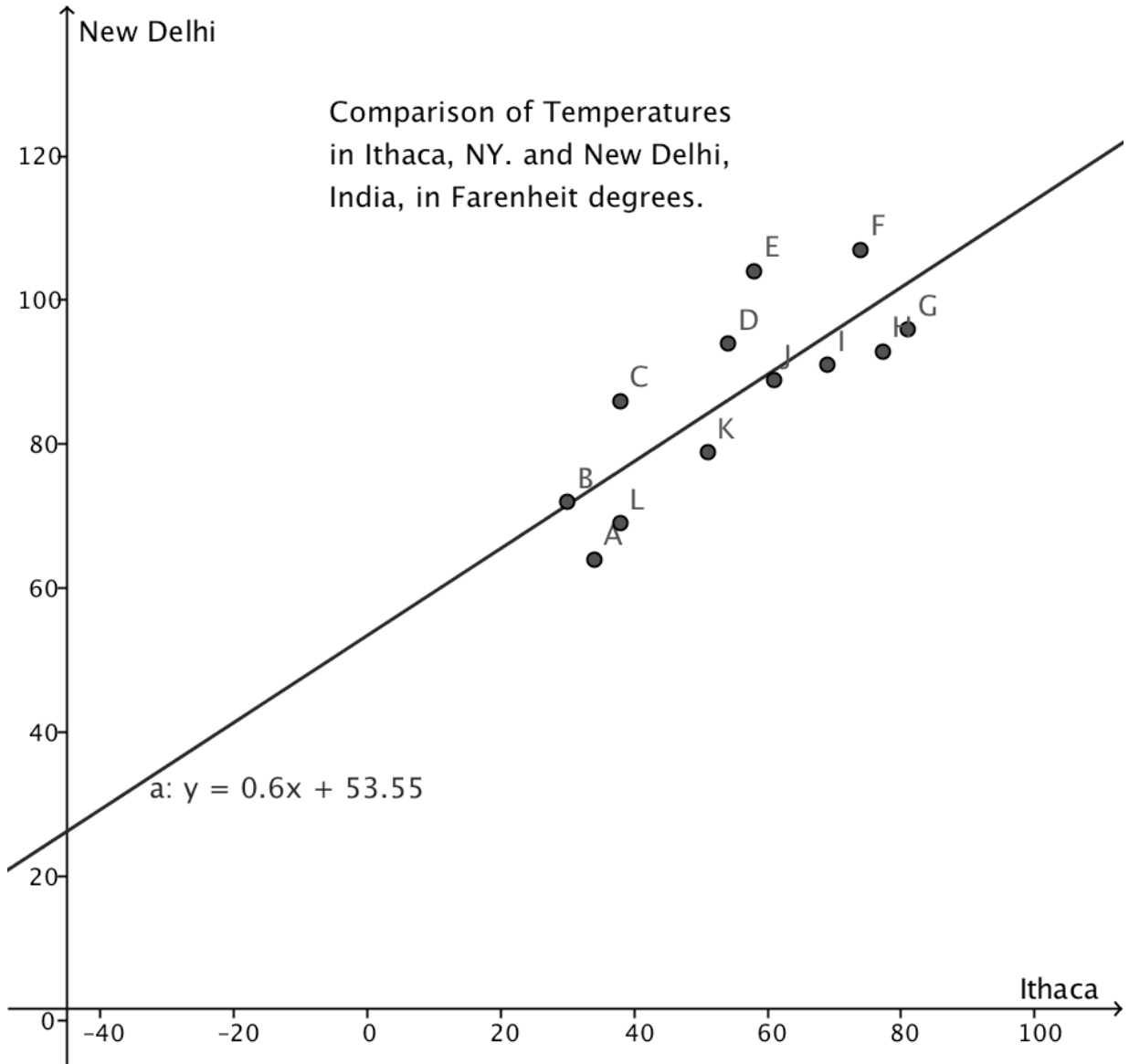
Month	Location # 1 Average Monthly Temperature	Location # 2 Average Monthly Temperature
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

Scatterplot: Once you have your data, plot the data on the graph below. Note that you are plotting temperature v. temperature. Be sure to label the two locations on your axes and indicate your scale. Then answer the questions below. (*Hint: I suggest putting New York on the x-axis, otherwise your line of best fit may have negative values*).



1. Do you see a correlation between the temperatures?
2. Would you describe the correlation as weak or strong?
3. Is the correlation slope positive or negative?

Line of Best Fit: Use a ruler to draw a line of best fit through the data. A best fit line should have some points on either side of the line. There is an example below. Then answer the questions on the next page.



Temperature Scatterplot Questions:

1. What is the slope of your line?
2. What is the y-intercept? (You might have a negative intercept).
3. What is the equation of your line in  $y = mx + b$  form?
4. Using your line, estimate the temperature in India when the temperature in New York is  $32^{\circ}\text{F}$  (or  $0^{\circ}\text{C}$ )?
5. What is the temperature in New York when the temperature in India is  $30^{\circ}\text{C}$  (or  $86^{\circ}\text{F}$ )?
6. According to your graph, in which months were the temperatures of the two locations furthest apart? And closest together?
7. Was there ever a month when New York was hotter than India?