Topic 7h: Two Variables

We want to look at the case where we have two variables, think of them as x and y, that are related in the sense that any one specific x value is paired with a corresponding y value. We might be given the values in a table format as in:

seq. num	x_i	y_i
1	43.7	46.3
2	32.0	29.0
3	56.2	55.4
4	33.6	42.5
5	47.9	44.8
6	50.9	50.8
7	50.5	48.3
8	46.0	53.9
9	42.0	51.2
10	48.9	49.4

Or, we could arrange those values as a set of ordered pairs:

{ (43.7, 46.3), (32.0, 29.0), (56.2, 55.4), (33.6, 42.5), (47.9, 44.8), (50.9, 50.8), (50.5, 48.3), (46.0, 53.9), (42.0, 51.2), (48.9, 49.4) }

Or we could arrange them in a horizontal listing of pairs:

X:	43.7	32.0	56.2	33.6	47.9	50.9	50.5	46.0	42.0	48.9
Y:	46.3	29.0	55.4	42.5	44.8	50.8	48.3	53.9	51.2	49.4

No matter how we list these pairs of values it is hard to see any relation between the two. A scatter plot of the values attempts to do that. First we need to find the range of both the x values and the y values. The x values go from 32.0 to 56.2 while the y values go from 29.0 to 55.4. Then, we set up a two dimensional graph covering those ranges, the x on the horizontal axis and the y on the vertical axis. Once we have our "graph paper" we mark out each point.