

# Computing the Line of Best by Hand HOMEWORK

(PRINT your name.)

## Women in Politics

The data we use is the percent of women in state legislatures for past years. We number the years 0, 2, 4, etc. where 0 is 1975, 2 is 1977, 4 is 1979, etc. Thus in the tables below **the year number is the number of years since 1975**. (This numbering scheme makes the arithmetic required in computations simpler.)

For the case you are assigned **complete the table** and use the formulas

**slope =  $m = \frac{n(S_{xy}) - (S_x)(S_y)}{n(S_{xx}) - (S_x)^2}$**  and **y-intercept =  $b = \frac{(S_y) - m(S_x)}{n}$**  to construct the equation of the line of best fit.

**n = the number of points**

**$(S_{xy})$  = sum of products =  $x_1y_1 + x_2y_2 + x_3y_3 + \dots + x_ny_n$**

**$(S_x)$  = sum of x-values =  $x_1 + x_2 + x_3 + \dots + x_n$**

**$(S_y)$  = sum of y-values =  $y_1 + y_2 + y_3 + \dots + y_n$**

**$(S_{xx})$  = sum of squares of x-values =  $x_1^2 + x_2^2 + x_3^2 + \dots + x_n^2$**

x	y	xy	x <sup>2</sup>
<b>S<sub>x</sub>=</b>	<b>S<sub>y</sub>=</b>	<b>S<sub>xy</sub>=</b>	<b>S<sub>xx</sub>=</b>

Give the equation of line of best fit here: → \_\_\_\_\_

If your last name begins with A-B your data set is →

Year	0	2	4	6	8
Percent	8.0	9.1	10.3	12.1	13.3

If your last name begins with C-D your data set is →

Year	14	16	18	20	22
Percent	17.0	18.3	20.5	20.7	21.6

If your last name begins with E-H your data set is →

Year	6	10	14	18	22
Percent	12.1	14.8	17.0	20.5	21.6

If your last name begins with J-M your data set is →

Year	8	10	12	14	16
Percent	13.3	14.8	15.7	17.0	18.3

If your last name begins with N-R your data set is →

Year	0	4	8	12	16
Percent	8.0	10.3	13.3	15.7	18.3

If your last name begins with S-Z your data set is →

Year	4	6	8	10	12
Percent	10.3	12.1	13.3	14.8	15.7