Lack-Of-Fit Practice problem:

A computer-equipment outlet sells an imported personal computer (PC) on a franchise basis and performs preventive maintenance and repair service on this PC. The following data have been collected from 16 recent calls on users to perform routine preventive maintenance service. Suppose they are interested in knowing how the number of machines serviced influences the total number of minutes spent by the service person.

# of serviced machines	Total # of minutes spent
6	86
5	95
1	18
5	69
4	62
7	101
4	39
4	53
2	33
8	102
5	65
2	25
7	105
1	17
4	55
5	68

$\sum x_i = 70$, $\sum x_i^2 = 372$, $\sum y_i = 993$, $\sum y_i^2 = 75\ 187$, $\sum x_i y_i = 5\ 246$

(a) Decompose SSE into the sum of squares due to the pure error, SSPE, and sum of squares due to the lack of fit, SSLF.

(b) Test whether the linear model $y = \beta_0 + \beta_1 x + \varepsilon$ is appropriate. Use $\alpha = 0.05$.