Example Problem #8

Least Squares Curve Fitting

In an electrophoretic fiber-making process, the diameter of the fiber, , is related to the current flow, . The following are measured during production:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (nA) | 300 | 300 | 350 | 400 | 400 | 500 | 500 | 650 | 650 |
| ( ) | 22 | 26 | 27 | 30 | 34 | 33 | 33.5 | 37 | 42 |

1. Use linear least-squares regression to determine the coefficients *m* and *b* in the function  that best fits the data.
2. Use least-squares regression to determine the coefficients *a*, *b*, and *c* in the function 
3. Use least-squares regression to determine the coefficients *a* and *b* in the function 