**BA 355: ICE 6 (Curve Fitting)**

In the ICE 6 data file, you’ll find 100 data points to which you will fit a curve.

1. Graph the data points in a scatter diagram. Is there an obvious pattern? Is it linear? Try to fit the pre-built Excel functions to it, are any of them any good?

**There is a nonlinear, logistic relationship with an apparent asymptote at 140. The best prebuilt curve is seemingly a polynomial function with the equation, y = -0.02x2 + 1.9481x + 73.348, however even this has obvious error in the beginning.**

1. You suspect that a curve that has a square root term, a linear term and a constant might fit the data pretty well. In other words, **y = a\*√x + b\*x + c**. Use solver to find the optimal parameters a, b and c that minimize the sum of the squared errors, keeping in mind that these values could be positive or negative. This will be the best-fitting curve for this data. **What are a, b and c?**

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| --- | --- |
| A | 35.9835 |
| B | -2.91221 |
| C | 8.351529 |

1. Draw the curve created the equation with the optimal parameters on the same scatter diagram as the original data points. Visually, does it look like a good fit?

**Great Fit**

1. Calculate the r-squared value between the original data points and the points determined by the best-fitting equation. Use =RSQ() function in Excel.

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| **RSQ** |
| **80.87** |

1. Re-solve for a, b and c but now force them to be integers. Solver will do this, figure out how or ask me…

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| A | 37 |
| B | -3 |
| C | 6 |