

Email your files to amohr@nebrwesleyan.edu by 11:59 pm on the due date. If you have additional written work to show, bring that with you to the next class period.

Shopping on the Internet

Use your preferred spreadsheet software to complete question 53 on page 384 in the text. Be certain to submit the scatter plot together with the exponential regression function in addition to the answers to the other questions.

We have not done an example of converting between $y = ab^x$ (the exponential form spreadsheets often given) and $y = ae^{kt}$ (the form most useful for calculus), so I will provide an example. Recall that $x = e^{\ln x}$ for positive values of x (exponentiation and logarithms are inverse operations). We can use this fact to convert from ab^x to e^{kt} . For example,

$$\begin{aligned} 2 \cdot 3^x &= 2 \cdot (e^{\ln 3})^x \\ &\approx 2 \cdot (e^{1.099})^x \\ &= 2e^{1.099x}. \end{aligned}$$

Notice the initial value a (in this case, 2) remains unchanged since it is not a part of the exponential base. This will always be the case.

Box-Office Revenue

Use your preferred spreadsheet software to complete questions 1 - 10, 21, and 22 on page 387 in the text. Be certain to submit all scatter plots together with their regression functions in addition to the answers to the other questions.

It seems that most spreadsheet programs are not able to perform logistic regression (which blows my mind slightly, given how important logistic functions are). The best alternative I've found is to use full-blown Mathematica (not WolframAlpha), which is available in all Olin computer labs. I have posted an example on the course website: <http://www.austinmohr.com/14spring060/logistic.nb>. Save this file and try the example, then modify it to obtain the logistic regressions you need for this project. Include the Mathematica notebook file (.nb) with your final submission.