Spectrophotometry

The writeup gives two different straight-line relationships for analyzing the data — eq 7 on p 67, and the equation in Question 3 on p 71. Both of these involve fitting the reciprocal of the directly measured quantity, A_x. While this practice has been standard for at least half a century, it is not the best way to analyze such data. The reason is that if the measured quantity has approximately constant error, its reciprocal will have a strongly varying error. (Show this!) This means that while a fit of A_x itself might be properly unweighted, a fit of its reciprocal should be a strongly weighted fit.

After you have obtained estimates of $_x$ and K from the indicated straight-line fits, try analyzing the data by means of the following nonlinear fit:

$$\frac{A_x}{[I_2]_0 \ell} = \frac{_x \, K \, [M]_0}{1 \, + \, K \, [M]_0}$$

If you <u>really</u> feel motivated, you might try assigning weights to such a fit, taking into account the estimated uncertainty in your $[I_2]_0$ values.