# Additional information about how to extrapolate missing concentrations

To calculate AUC, you need to have the same time-points for all individuals. If concentrations are missing, you can extrapolate these values.

Elimination of your substances follows 1st order elimination, which means that concentrations can be describe as a log-linear function with time.



*Figure 1. Concentration versus time on normal scale (left panel) and on logarithmic scale (right panel). Note that the relationship appears linear after approximately 5 hours when the axis for concentrations is logged.*

Described with an equation:



in which *Conct=24* and *Conct=12* are the concentrations at 24 and 12 hours, respectively and *k* is the slope of the relationship. To use this equation you need the slope, *k*.

You can calculate the slope by using the previous concentrations and their associated time-points, according to:

