

Tip Sheet: Fitting an exponential to a wave

To determine the time constant of the portion of a wave, you will need to fit a single exponential equation to that wave. The following guide illustrates the steps involved.

1. Plot the wave in a new graph window
2. Zoom in on the area of the wave where you want to fit the curve
3. Press Apple-I to bring up the cursors

Drag cursor A to the beginning of the fit region

Drag cursor B to the end of the fit region

4. Fit the curve

on the menu, select Analysis | Curve Fitting...

set the Function to "exp_Xoffset"

check the "From Target" box to fit the curve to the wave in the graph

In the "Data Options" tab click on the "Cursors" button to select the data between the cursors

Click "Do It"

Click "OK" on the curve fit box that appears

5. Check the curve fit and get results

Double click in the Graph Window

Your fit line will be something like "fit_ad1_XXX"

Modify this trace to make it larger and a different color so you can see it on the graph

Click on the command line window – the parameters for the fit line are there. The value of tau is the time constant of the wave.