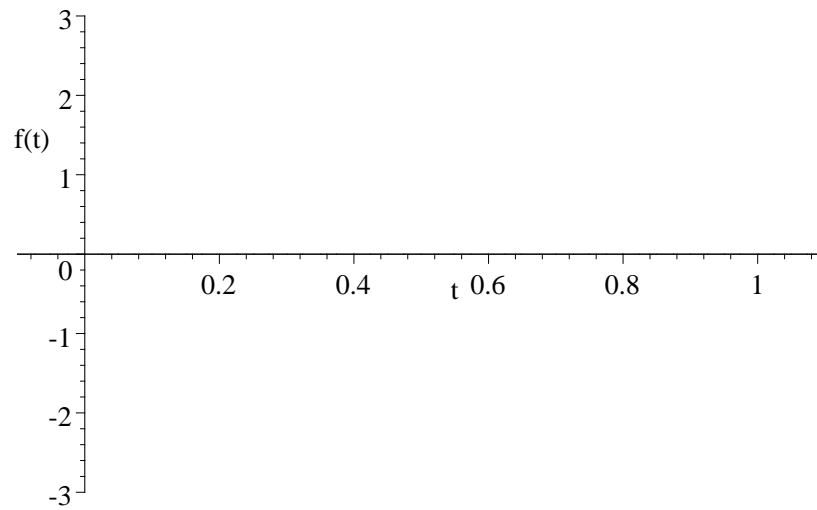


3. Plot the data and the interpolating function on the axes below. (attach a Maple plot if you like)

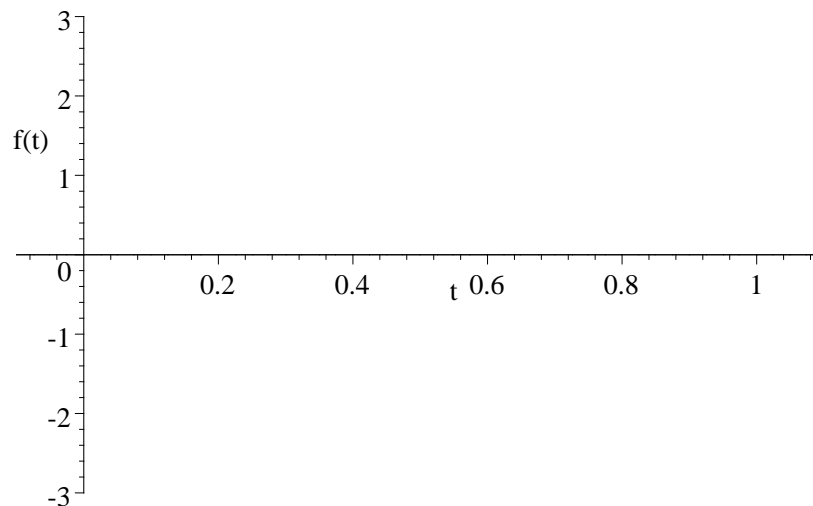


4. If $f(t)$ has period 1 and is continuous which sample point is redundant? Is the redundant sample value equal to the interpolated value?

Consider the data vector $X = [0 \ 1 \ 1 \ -1 \ -2]^t$ that is obtained by sampling a function $g(t)$ every .0.2 second on the interval for $[0, 1]$. Note that now we are taking a sample at 0 but not at 1.

- Set up the matrix to solve for the coefficients for an interpolating polynomial of frequencies to $k = 2$. Find the coefficients of the interpolating polynomial..

- Plot the data and the interpolating function on the axes below. (attach a Maple plot if you like). If the original signal $g(t)$ has period, 1 what should the next data value be? Does this agree with the interpolating function value? Show this on your plot.



7. A noisy signal is sampled over $[0, 1]$ at N points with a sampling increment of $\Delta t = 1/N$ (it is not sampled at 1). The data is given in `datasamp.mws` on the course webpage. Using the methods above find the major frequencies of the signal To be specific ignore those frequencies whose coefficients are smaller than 5% of the maximum (in absolute value) coefficient.