QUESTIONS

1-) In the question follow the given instructions;

- Create 3 cos signal.
- Fs = 500
- Duration = 2
- Sampling is = fs*duration
- T = 0:1/fs:duration-1/fs;
- Amplitudes are 3, 3, 1
- Frequencies are 30, 45, 70
- Phase angles are 0.6, -0.8, 2
- Add all the signals together and take the Fast Fourier Transform. Plot the figure and give correct names for the axis.
- Change the axis to the Frequency vs Amplitude using;

  S_oneSide = S(1:N/2);
  f = fs*(0:N/2-1)/N;
  S_meg = abs(S_oneSide)/(N/2);
- Finally display the phase angles of the fft signal using “angle” command

2-) Find the Fourier Transform the given signal by hand and define appropriate w and time.

$$f(x) = \begin{cases} \frac{1}{\omega}, & |x| \leq \omega \\ 0, & |x| \geq \omega \end{cases}$$