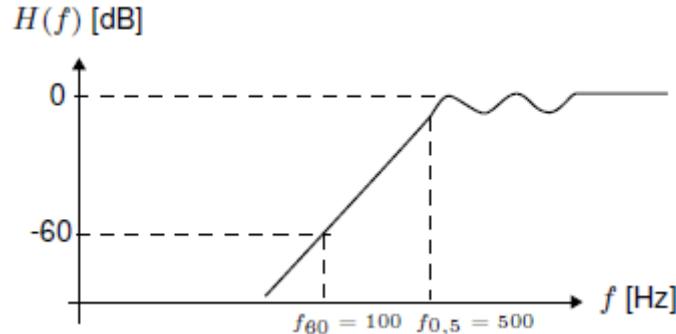


## Exercise IIR bilinear transform

Use bilinear z transform method to design a 0.5 dB Chebyshev highpass digital filter with specifications as shown in the figure, sampling frequency 8kHz.



## Exercise IIR bilinear transform.2

Design a digital lowpass filter with

- Cutoff frequency 800 Hz
- Sampling frequency 8 kHz.
- Corresponding analog filter is 2<sup>nd</sup> order Butterworth low pass filter
- Use 3 different methods:
  - Matched z transform
  - Impulse Invariant z transform
  - Bilinear z transform

Make a Bode plot with the analog filter and all the three methods together, and compare their differences.