EE 3900 - Assignment 3

VIBHAVASU

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Given Discrete time signal:

$$x[n] = \begin{cases} 1 & \text{if } -1 \leq x \leq 3 \\ \frac{1}{2} & \text{if } x = 4 \\ 0 & \text{everywhere else} \end{cases} \tag{1.1}$$

It is plotted in the following figure:

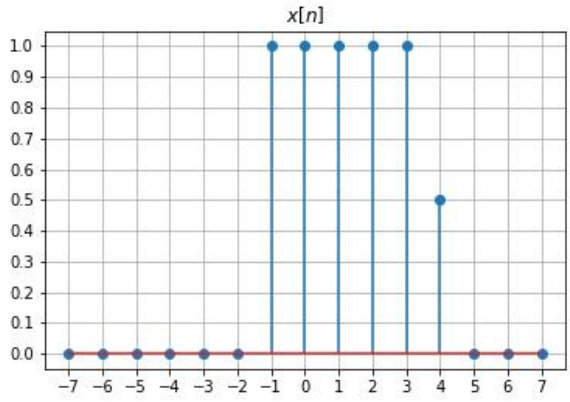

Fig. 0: $x[n]$

Question: Find and plot $x[n-2]$

2 Solution:

$$x[n-2] = \begin{cases} 1 & \text{if } 1 \leq x \leq 5 \\ \frac{1}{2} & \text{if } x = 6 \\ 0 & \text{everywhere else} \end{cases} \tag{2.1}$$

$x[n-2]$ is plotted in the following figure

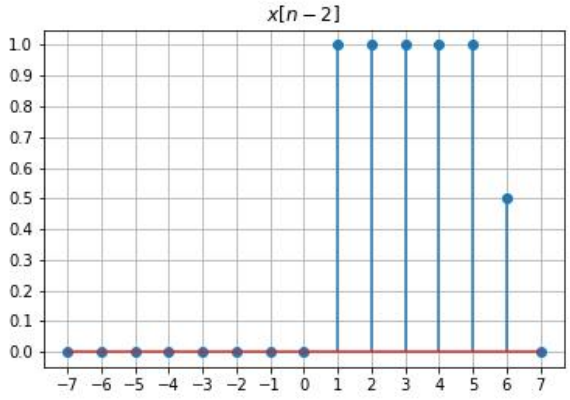

Fig. 0: $x[n-2]$

The code used for this exercise can found at:

```
wget https://raw.githubusercontent.com/gadepall/
    EE1310/master/Assignment 3/a3.ipynb
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For i^{th} neutrino and j^{th} pulsar:

$$S_{ij} = \frac{1}{2\pi\sigma_i^2} e^{-(|\theta_i - \theta_j|)^2/2\sigma_i^2}$$

$$S_i = \sum_{j=0}^{p} \frac{S_{ij}}{ns[j]}$$

where ns[j] is the no.of events associated with j^{th} source/pulsar

$$B_i = \frac{\text{total no of neutrino events within } \delta \pm 3 \text{ of } \nu_i}{2\pi(\sin(\delta + 3) - \sin(\delta + 3))}$$