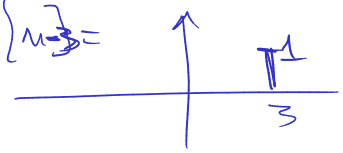
Exercises Week 2

$\delta[n-3]$ =



Ex. 1 : Solved on Web already

Ex. 2

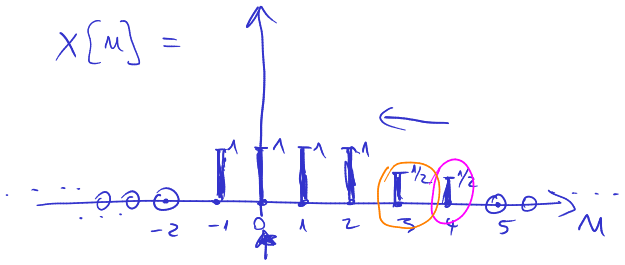
2. Consider the following signal:

$$x[n] = \begin{cases} 1, & -1 \le n \le 2 \\ \frac{1}{2}, & 3 \le n \le 4 \\ 0, & elsewhere \end{cases}$$

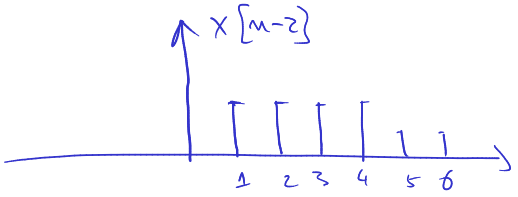
Represent graphically the following signals:

a. $x[n-2]$
b. $x[n+2]$
c. $x[4-n]$
d. $x[n] \cdot u[2-n]$
e. $x[n-1] \cdot \delta[n-3]$
f. $x[n^2]$
g. The even part of $x[n]$
h. The odd part of $x[n]$

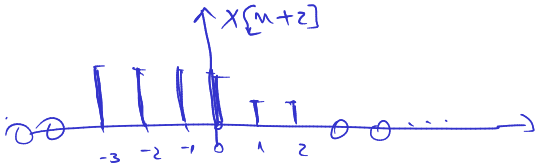
$x[n]$ =



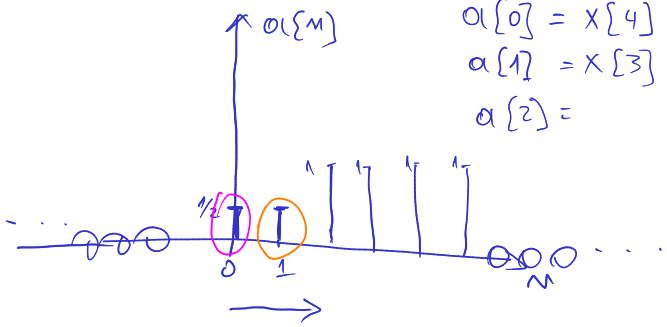
a).



b).

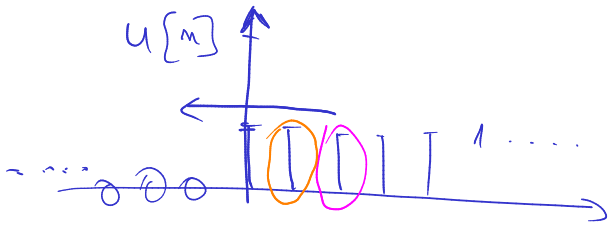


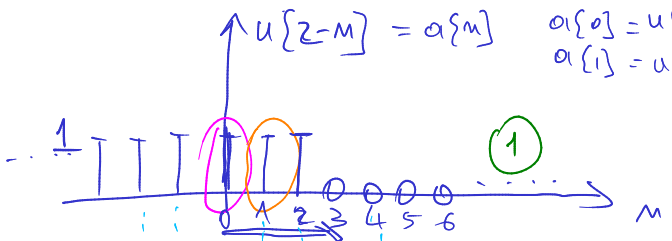
c). $x[4-n] = a[n]$



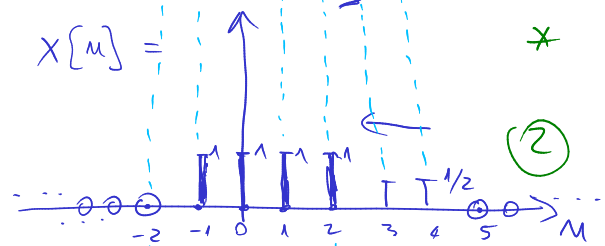
$a[0] = x[4]$
$a[1] = x[3]$
$a[2] =$

d). $x[n] \cdot u[2-n] = b[n]$

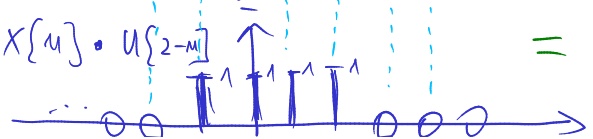




$a[0] = u[2]$
$a[1] = u[1]$



$x[n] \cdot u[2-n]$ =



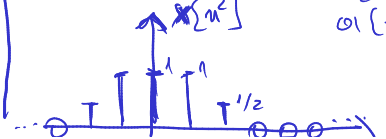
e). $x[n-1] \cdot \delta[n-3]$

$x[n-1]$: $\{\ldots 0, 0, 1, 1, 1, 1, \frac{1}{2}, \frac{1}{2}, 0 \ldots\}$

$\delta[n-3]$: $\{\ldots 0, 0, 0, 0, \underset{n=3}{1}, 0, 0, \ldots\}$

$= \{\ldots 0, 0, 0, 0, 1, 0, 0, \ldots\}$

f). $x[n^2] = a[n]$

$a[0] = x[0] = 1$
$a[1] = x[1] = 1$
$a[2] = x[4] = 1/2$
$a[3] = x[9] = 0$

$a[-1] = x[1] = 1$
$a[-2] = x[4] = 1/2$
$a[-3] = x[9] = 0$