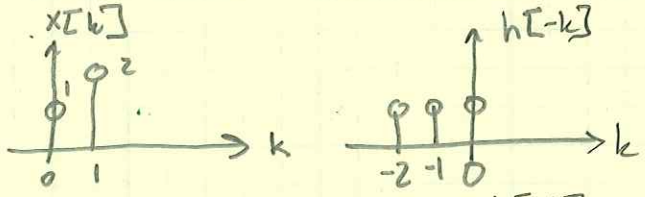
Let $x[n] = [1 \quad 2]$ and $h[n] = [1 \quad 1 \quad 1]$.

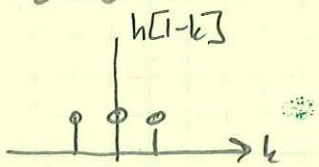
1. Find the linear convolution $x[n] * h[n]$
2. Find the circular convolution $x[n] \circledast_3 h[n]$
3. Write the Matlab command to find 1)
4. Write the Matlab command to find 2) using DFT's

Let $x[n] = [1 \quad 2]$ and $h[n] = [1 \quad 1 \quad 1]$

1. Find linear convolution $x * h$

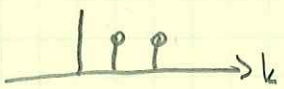


$y[0] = 1 \cdot 1 = 1$



$y[1] = 1 \cdot 1 + 1 \cdot 2 = 3$

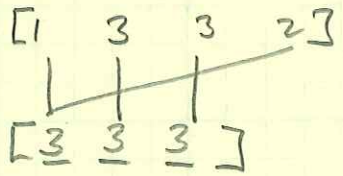
$y[2] = 1 \cdot 1 + 1 \cdot 2 = 3$



$y[3] = 1 \cdot 2 = 2$

$y = [1 \quad 3 \quad 3 \quad 2]$
↑

2. Find circ conv. $x[n] \circledast_3 h[n]$



3. Matlab to find 1)

```
>> x = [1 2]';
>> h = [1 1 1];
>> conv(x, h)
```

4. Matlab to find 2) with DFTs

```
>> x = [1 2 0]
>> h = [1 1 1]
>> ifft(fft(x) .* fft(h))
```