

$g = h * f$ , given 'g' and 'h' we have to determine 'f'.

- For 1-D case

Let, ~~size of~~ ~~size (h)~~  $\text{size}(f) = N = \text{size}(g)$  and  $\text{size}(h) = M$ ,  
 $(M \leq N)$

and coordinate system -  $x: x \in [0, N]$ ,  $x=0$  is the leftmost point.

- Method - 1) We will calculate DFT of  $g (=G)$  and  $h (=H)$ ,

and will do pointwise division i.e.  $G/H$

- 2) After division we will do IDFT of the result to get 'f'.  
 Elements of 'f' image will be the complex magnitude of the vector after IDFT.

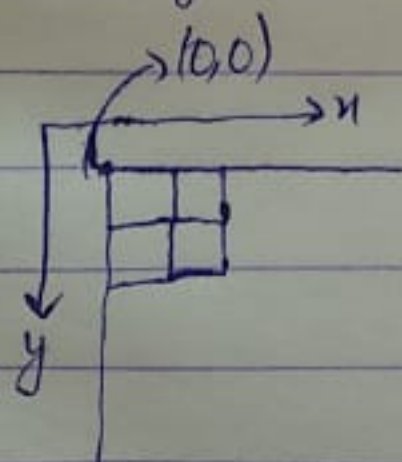
- Difficulties - 1) ~~It~~ To do pointwise division  
 $\text{size}(H)$  should be equal to  $\text{size}(G) = N$

- 2) All elements of  $H$  should be nonzero

- For 2-D case

Assume,  $\text{size}(G) = \text{size}(F) = N_1 \times N_2$  and  $\text{size}(H) = M_1 \times M_2$

and coordinate system such that  $(0,0)$  is at topleft i.e.





- Again, methods and difficulties will be same i.e.

To do the pointwise division size ( $H$ ) should be  $N_1 \times N_2$  and all elements of  $H$  should be nonzero, otherwise the corresponding element of ' $g/H$ ' will blow up, then IDFT ~~would~~ <sup>could</sup> not ~~be~~ <sup>get</sup> calculated.

Also, one more problem could arise if someone defines ~~the case~~ a different coordinate system for both ' $g$ ' and ' $h$ '.