(3) 

 where 

 
 
From Taylor’s series,
 
 
Therefore,  is a linear combination of
 .

The lifter can be designed as
  for *n* = 5*m* where *m* is any non-negative integer (except for *m* = 1, 2, 3, 7),
  otherwise.

(4) *h*[*n*] = 0.2*n* for *n* > 0, *h*[*n*] = 0.2−*n* for *n* < 0, *h*[0] = 0.5

If *h*1[*n*] = 0.2*n* for *n* > 0, *h*1[*n*] = 0 otherwise, then 

If *h*2[*n*] = 0.2−*n* for *n* < 0, *h*2[*n*] = 0 otherwise, then since *h*2[*n*] = *h*1[−*n*], .
The *Z* transform of 0.5*δ*[*n*] is 0.5.
Therefore,
 
 
 ,
 ,
 
5 multiplications (−0.5, −2.2, −0.5, 5,2, −1) are required to calculate each of *y*[*n*]. Since the multiplication of −0.5 and −1 can be viewed as trivial multiplications, **only 2 multiplications** are required to calculate each of *y*[*n*].