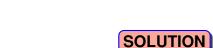
## **EXERCISE 5.12:** Determine the impulse response h[n] of the 51-point causal running averager and determine the

impulse response  $\tilde{h}[n]$  for the 51-point centralized running averager.



McClellan, Schafer and Yoder, Signal Processing First, ISBN 0-13-065562-7. Prentice Hall, Upper Saddle River, NJ 07458. © 2003 Pearson Education, Inc.



$$y \ln 7 = \frac{1}{51} \sum_{k=0}^{50} x [n-k]$$

$$\Rightarrow h[n] = \frac{1}{51} \sum_{k=0}^{50} \delta[n-k]$$

CENTRAL RUNNING AVG:  

$$\tilde{y}[n] = \frac{1}{51} \sum_{k=2}^{25} x[n-k]$$

