EXERCISE 5.1: Determine the output of a *centralized running averager*

$$y[n] = \tfrac{1}{3}(x[n + 1] + x[n] + x[n - 1])$$

for the input in Fig. 5-2(a). Is this filter causal or noncausal? What is the support of the output for this input? How would the plot of the output compare to Fig. 5-2(b)?