# Chapter 1 Problem 3

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**This problem studies white noise, moving average filters, and autoregression.**

(a) Generate n = 100 observations from the autoregression $x_t = -.9x_t - 2 + w_t$ with $\sigma_w = 1$, using the method described in Example 1.10, page 13. Next, apply the moving average filter $v_t = (x_t + x_{t-1} + x_{t-2} + x_{t-3})/4$ to $x_t$, the data you generated. Now, plot $x_t$ as a line and superimpose $v_t$ as a dashed line. Comment on the behavior of $x_t$ and how applying the moving average filter changes that behavior.