1-5. Z&T (Ed. 6): 6.14, 6.15, 6.23, 6.29, 7.25

6. Let $y(t) = 2n(t)\cos(2\pi f_c t + \theta)$, where $n(t)$ is bandpass noise centered at f_c. Show that $y(t)$ consists of a lowpass component and a bandpass component. Find the mean value and the variance of each component in terms of the second-order statistics (mean and autocorrelation) of $n(t)$.

7. See Matlab assignment.