1. A coin is thrown independently 10 times to test the hypothesis that the probability of heads is $\frac{1}{2}$ versus the alternative that the probability is not $\frac{1}{2}$. The test rejects if either 0 or 10 heads are observed.

   (a) What is the significance level of the test?

   (b) If in fact the probability of heads is .1, what is the power of the test?

2. Suppose that $X \sim Binomial(100, p)$. Consider the test that rejects $H_0 : p = 0.5$ versus $H_1 : p \neq 0.5$ whenever $|\bar{X}50| > 10$. Use the normal approximation to the binomial distribution to answer the following:

   (a) What is α ?

   (b) Graph the power as a function of p