7C One-Tailed Tests

1. A single observation, x, is taken from a Binomial distribution $B(12, p)$ and a value of 8 is obtained. Use this observation to test $H_0: p = 0.4$ against $H_1: p > 0.4$ using a 5% significance level.

2. The standard treatment for a particular disease has a $\frac{1}{4}$ probability of success. A certain doctor has undertaken research in this area and has produced a new drug which has been successful with 10 out of 20 patients. The doctor claims that the new drug represents an improvement on the standard treatment. Test, at the 5% significance level, the claim made by the doctor.