12 It is known that under the standard treatment for a certain disease, 9.7% of patients with the disease experience side effects within one year. In a trial of a new treatment, 450 patients with this disease were selected and the number, X, that experienced side effects within one year was noted.
It was found that 51 of the 450 patients experienced side effects within one year.

(a) Test, at the 10% significance level, whether the proportion of patients experiencing side effects within one year is greater under the new treatment than under the standard treatment.

[7]

(b) It was later discovered that all 450 patients selected for the trial were treated in the same hospital.

Comment on the validity of the model used in part **(a)**. **[1]**