

### Homework assignment 3

#### Case 1:

A clinical trial of 1 186 multiple sclerosis patients was organized to study the therapeutic effect of a new drug. After the end of the trial, 23 of 671 treated patients experienced relapse of the disease. In the placebo group, relapse was documented for 29 out of 515 patients. Is there a difference in the relapse rate in the two groups? Is the new drug effective?

#### Case 2:

152 diabetes patients were put on a clinical trial for a new drug. After the end of the first week, the mean normal fasting (no food for eight hours) blood sugar level in the intervention group (n = 91) was 89 mg/dl (SD = 11 mg/dl), while the same outcome in the control group (n = 61) was 93 mg/dl (SD = 6 mg/dl). Is the new diabetes drug more effective?

#### Theory 1:

The rule of 3-sigma is applicable under what conditions?

#### Theory 2:

Mean weight of 1 000 male volleyball players is found to be 86 kg with a standard deviation of 2 kg. Data are normally distributed.

- (1) The number of volleyball players from this sample whose weight is bigger than 84 kg and smaller than 92 kg is equal to:.....
- (2) The number of volleyball players from this sample whose weight is bigger than 84 kg or smaller than 92 kg is equal to:.....
- (3) The number of volleyball players from this sample whose weight is smaller than 84 kg or bigger than 92 kg is equal to:.....
- (4) The number of volleyball players from this sample whose weight is smaller than 84 kg and bigger than 92 kg is equal to:.....