

Homework Solutions

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Exercise 72

- (a) The null hypothesis is that the person is not infected and the alternative hypothesis is that the person is infected. Therefore, a Type I error would be to conclude that the person is infected when he is not, i.e., a false positive. A Type II error would be to conclude that the person is not infected when he is, i.e., a false negative.
- (b) α is associated with a Type I error, which is a false positive, so $\alpha = 0.07$ and β is associated with a Type II error (false negative), so $\beta = 0.02$.
- (c) The higher absorbency ratio would make it harder to get a positive test result, making false positives less likely and false negatives more likely. Therefore,
- (i) The value of α would decrease.
 - (ii) The value of β would increase.