

To pass this exam you will need to get at least total of 9 points and at least 1 point from each question.

1. Explain in a few sentences each of the following concepts:

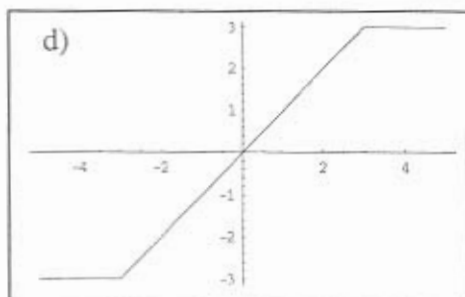
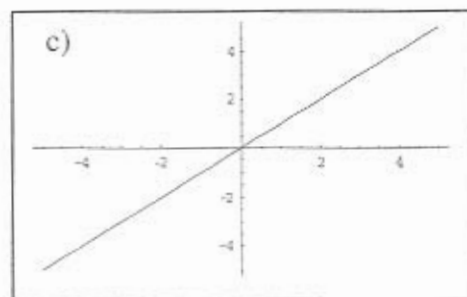
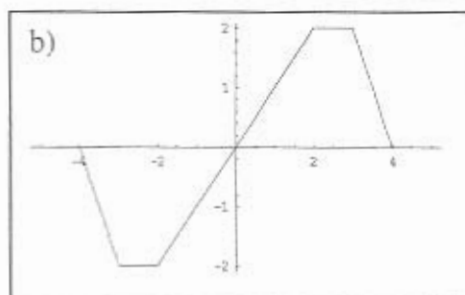
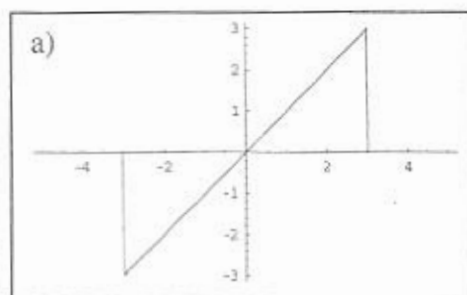
- Fisher consistency,
- Order statistics,
- Gross-error sensitivity,
- Unbiasedness of estimator.

4 p.

2. Define the three finite-sample versions of the influence function given in the lecture notes.

4 p.

3. We have four different estimators and their influence functions are:



Choose and briefly explain which one of these influence functions corresponds best to each of the following ways of treating outliers:

- No treatment of outliers at all,
- Bounding the influence of outliers,
- Smooth rejection of outliers,
- Hard rejection of outliers.

4 p.

4. Which of the following statements concerning the student presentations are true and which are false?

- Likelihood and probability functions are the same.
- Estimation and outlier detection are tightly connected.
- Lack of robustness is a drawback of the linear regression model.
- The name of R -estimators comes from redescending M -estimators from which the R -estimators are derived.

4 p.