COMP206P Exercise sheet 8

1. Using the data given in example (2) on p.57 of the lecture notes, construct a 95% confidence interval for the true mean resistance of the resistors produced.

2. Solve example (3) (parts (a) and (b)) on p.57 of the lecture notes.

3. (*based on a 2011 exam question*:) Production line A at a factory makes electrical components, whose lifetimes are known to have a mean of 4000 hours. The factory now starts up a new production line, B, which makes electrical components of identical appearance as those made by production line A. In order to assess whether there is a systematic difference between the lifetimes of components made by production lines A and B, an independent random sample of 35 components from production line B are tested to destruction. The following data are obtained, where the lifetimes of these 35 components are expressed in thousands of hours:

lifetime (thousands of hours)	0-1	1-2	2-3	3-4	4-5	5-7	7-9	9-11	11-15	15-19
frequency	5	6	5	3	4	4	3	2	2	1

Perform an appropriate statistical hypothesis test to assess, at a significance level of 5%, whether these data provide significant evidence that the mean lifetime of components made by production line B is different from that of components made by production line A. State your conclusion clearly.