04b Sample Examination Problems Chapter 8

1. The table below shows the annual salaries in dollars of randomly selected faculty in public educational institutions and private educational institutions.

Public	52127	57380	34122	8334	35730	22411	40196
Private	40807	26448	48970	52411	20223	39421	40102
Public	28528	10562	33666				
Private	46461	32557					

(a) Find a 90% confidence interval for the difference between population mean annual salaries in the public and private institutions.

(b) Test the null hypothesis that mean salary for the private institutions is 1000 dollars more than in the public institutions against the alternative that the mean for the private institutions is more than 1000 dollars greater.

(c) State carefully the assumptions you have made in arriving at the test and confidence interval.

2. Primary school children with reading problems were randomly divided into a control group and a group that received special reading teaching. The results of a subsequent reading test for all the children are given below:

Control	42	43	55	26	62	37	33	41	19	54	20	
	85	46	10	17	60	53	42	37	42	55	28	48
Special	24	43	58	71	43	49	61	44	67	49		
Teaching	53	56	59	52	62	54	57	33	46	43	57	

(a) Find a 99% confidence interval for the difference in score between the controls and the specially-taught group.

(b) Test at the 10% level the null hypothesis that there is no difference between the two groups.