The times taken to run 400 metres by students at two large colleges P and Q are being compared. There is no evidence that the population variances are equal. The time taken by a student at college P and the time taken by a student at college Q are denoted by x seconds and y seconds respectively. A random sample of 50 students from college P and a random sample of 60 students from college Q give the following summarised data.

$$\Sigma x = 2620 \qquad \Sigma x^2 = 138\,200 \qquad \Sigma y = 3060 \qquad \Sigma y^2 = 157\,000$$

(i) Using a 10% significance level, test whether, on average, students from college P take longer to run 400 metres than students from college Q. [9]

(ii) Find a 90% confidence interval for the difference in the mean times taken to run 400 metres by students from colleges P and Q. [3]