1 The manager of a hardware store is interested in whether there is a difference in the amount spent per customer on weekdays (\$$x$) compared to weekends (\$$y$). Random samples of 120 customers on weekdays and 80 customers on weekends are taken and the amount spent by each customer is recorded. The results are summarised as follows.

$$\Sigma x = 10\,470 \qquad \Sigma(x-\overline{x})^2 = 12\,283 \qquad \Sigma y = 6560 \qquad \Sigma(y-\overline{y})^2 = 13\,520$$

Test at the 1% significance level whether there is a difference in the mean amount spent per customer on weekdays compared to weekends. You should not assume that the population variances of the amounts spent on weekdays and weekends are equal. [7]