5 Claire grows strawberries on her farm. She wants to compare two brands of fertiliser, brand *A* and brand *B*.

She grows two sets of plants of the same variety of strawberries under the same conditions, fertilising one set with brand *A* and the other with brand *B*.

The yields per plant, in grams, from each set of plants are summarised below.

	Mean	**Standard deviation**	**Number of plants**
Fertiliser *A*	1377	17.8	50
Fertiliser *B*	1368	18.4	40

(a) Stating your hypotheses clearly, carry out a suitable test to assess whether the mean yield from plants using fertiliser *A* is greater than the mean yield from plants using fertiliser *B*.
Use a 1% level of significance and state your test statistic and critical value.

(7)

The total cost of fertiliser *A* for Claire's 50 plants was £75

The total cost of fertiliser *B* for Claire's 40 plants was £50

Claire sells all her strawberries at £3 per kilogram.

(b) Use this information, together with your answer in part (a), to advise Claire on which of the two brands of fertiliser she should use next year in order to maximise her expected profit per plant, giving a reason for your answer.

(3)

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Question 5 continued

(Total for Question 5 is 10 marks)