8. (a) Use the standard results for summations to show that

$$\sum_{r=1}^{n} (2r-1)^2 = \frac{n}{3}\left(An^2 + B\right)$$

where A and B are integers to be determined.

(5)

(b) Use the answer to part (a) to determine the value of

$$25^2 + 27^2 + 29^2 + \ldots + 95^2$$

You must make your method clear.

(3)

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Question 8 continued

(Total for Question 8 is 8 marks)