

**5** An arithmetic sequence has first term  $a$  and common difference  $d$ .

The sum of the first 16 terms of the sequence is 260

**5 (a)** Show that  $4a + 30d = 65$

**[2 marks]**

**5 (b)** Given that the sum of the first 60 terms is 315, find the sum of the first 41 terms.

**[3 marks]**

**5 (c)**  $S_n$  is the sum of the first  $n$  terms of the sequence.

Explain why the value you found in part **(b)** is the maximum value of  $S_n$

**[2 marks]**