## SEQUENCES & SERIES (Q 5, PAPER 1)

## 2001

5 (a) 5, 13, 21, 29,.... is an arithmetic sequence. Which term of the sequence is 813?
(b) The *n*th term of a geometric series is given by T<sub>n</sub> = 3<sup>n</sup>.
(i) What is the value of *a*, the first term?
(ii) What is the value of *r*, the common ratio?
(iii) Show that S<sub>10</sub>, the sum of the first ten terms, is <sup>3</sup>/<sub>2</sub>(3<sup>10</sup> - 1).
(c) The sum of the first n terms of an arithmetic series is given by S<sub>n</sub> = 4n<sup>2</sup> - 8n.
(i) Use S<sub>1</sub> and S<sub>2</sub> to find the first term and the common difference.
(ii) Starting with the first term, how many terms of the series must be added to give a sum of 252?

Answers			
5	(a) 102		
	(b) (i) 3	(ii) 3	
	(c) (i) $a = -4, d = 8$	(ii) 9	