SEQUENCES & SERIES (Q 5, PAPER 1)

2004

5	(a)	The first term of an arithmetic sequence is 40 and the common difference is -5 . Write down the first five terms of the sequence.	
	(b)) The <i>n</i> th term of an arithmetic series is given by	
		$T_n = 1 + 5n.$	
		(i) The first term is a and the common difference is d .	
		Find the value of <i>a</i> and the value of <i>d</i> .	
		(ii) Find the value of <i>n</i> for which $T_n = 156$.	
		(iii) Find S_{12} , the sum of the first 12 terms.	
	(c)	The first term of a geometric series is 1 and the common ratio is -4 .	
		(i) Write down the first three terms of the series.	
		(ii) Find S_6 , the sum of the first 6 terms.	
		(iii) Show that $16S_4 - 3 = S_6$, where S_4 is the sum of the first 4 terms.	

Answers					
5	(a) 40, 35, 30, 25, 20				
	(b) (i) $a = 6, d = 5$	(ii) 31	(iii) 402		
	(c) (i) 1, -4, 16	(ii) -819			