Question 1

(a)	Way 1: $250\,000 \times (1.1)^{n-1} > 1000000$ or $250\,000 \times (1.1)^n > 1000000$	M1
	$(1.1)^{n-1} > 4$ or $(1.1)^n > 4$	A1
	So $(n-1)\log 1.1 > \log 4$ or $n - 1 > \log_{1.1} 4$ or $n \log 1.1 > \log 4$ or $n > \log_{1.1} 4$	M1 A1
	the year is 2034	(4)
	Way 2: Alternative method using trial and improvement	
	$250\,000 \times (1.1)^{15} = 1044312$	M1
	$250\,000 \times (1.1)^{14} = 949374.58$	M1
	Gives correct two amounts, the year is 2034	A1, A1 (4)
(b)	$S = \dfrac{a(1 - r^{"12"})}{1 - r}$ or $S = \dfrac{a(r^{"12"} - 1)}{r - 1}$	M1
	$S = \dfrac{250000((1.1)^{12} - 1)}{(1.1) - 1}$	A1ft on their r
	$= (\pounds)\ 5346071$ (allow in standard form)	A1 (3)
		[7]

Question 2

(a)	$10000 = \dfrac{a}{1 - (-0.9)}$	M1
	$a = 19000$	A1 (2)
b)	Use ar^4	M1
	$19000 \times (-0.9)^4 = 12465.9$ (accept awrt 12466)	A1 (2)
c)	$S = \dfrac{a(1 - r^{12})}{1 - r}$ or lists and adds their first twelve terms with their a	M1
	$S = \dfrac{"19000"(1 - (-0.9)^{12})}{1 - (-0.9)}$ or $S = 10000(1 - (-0.9)^{12})$	A1ft
	$= 7176$ only	A1cso (3)
		[7]