Question number	Scheme	Marks
4 (a)	$ar + ar^4 = \dfrac{28}{81}$, $ar - ar^4 = \dfrac{76}{405}$	M1
	$ar = \dfrac{4}{15}$, $ar^4 = \dfrac{32}{405}$	M1A1
(i)	$\dfrac{ar^4}{ar} = \dfrac{32}{405} \div \dfrac{4}{15} = \dfrac{8}{27} \Rightarrow r = \dfrac{2}{3}$ *	M1A1
(ii)	$a = \dfrac{2}{5}$	B1 (6)
(b)	$S = \dfrac{\frac{2}{5}}{1 - \frac{2}{3}} = \dfrac{6}{5}$	M1A1 (2) **(8)**

Notes		
(a)	M1	For setting up **both** equations for the sum and the difference. Accept any letter for the first term.
	M1	Adds or subtracts their equations to eliminate ar or ar^4
	A1	For both correct $ar=\frac{4}{15}$ and $ar^4=\frac{32}{405}$
(i)	M1	Divides ar^4 by ar to achieve an equation for r^3
	A1	For $r=\frac{2}{3}$ **Note:** This is a given result and every step must be shown to achieve this mark
(ii)	A1	For $a=\frac{2}{5}$ oe
ALT 1 for part (a)		
(a)	M1	Sets up **both** equations for the sum and the difference $ar+ar^4=ar\left(1+r^3\right)=\frac{28}{81}$ $\quad ar-ar^4=ar\left(1-r^3\right)=\frac{76}{405}$
	M1	Factorises and divides equations above to eliminate ar to give $\left[ar\left(1+r^3\right)=\frac{28}{81}\right]\div\left[ar\left(1-r^3\right)=\frac{76}{405}\right]=\frac{\left(1+r^3\right)}{\left(1-r^3\right)}=\frac{28/81}{76/405}\ \left(=\frac{35}{19}\right)$
	A1	Achieves a correct equation in r^3 or r^4 $\frac{1+r^3}{1-r^3}=\frac{28\times405}{81\times76}$ or $\frac{r+r^4}{r-r^4}=\frac{28\times405}{81\times76}$
(i)	M1	Attempts to solve their equation in r^3 as far as $r=$
	A1	For $r=\frac{2}{3}$ **Note:** This is a given result so every step must be seen.
(ii)	B1	For $a=\frac{2}{5}$ oe
ALT 2 for part (a) using t_2 and t_5 or any other letters e.g x,y		
(a)	M1	Solves SE by elimination to give: $t_2+t_5=\frac{28}{81}$ and $t_2-t_5=\frac{76}{405}\Rightarrow t_2=\frac{4}{15}$ OR $t_5=\frac{32}{405}$
	M1	$t_2=ar=\frac{4}{15}$ OR $t_5=ar^4=\frac{32}{405}$ — Award these marks when they identify and use $t_2=ar=\frac{4}{15}$, $t_5=ar^4=\frac{32}{405}$
	A1	$t_2=ar=\frac{4}{15}$ AND $t_5=ar^4=\frac{32}{405}$
Then follow ms for (i) and (ii).		
(b)	M1	Uses **correct** formula for the sum to infinity of a geometric series $S=\frac{a}{1-r}=\frac{\text{their } a}{1-\frac{2}{3}}='\frac{6}{5}'$ They must reach a value for S_∞ for this mark
	A1	For $S=\frac{6}{5}$