3	**(a)**		1	**B1** **[1]**	**2.2a**	Cao Must be clear that the limit is **equal to 1**. Therefore tending to or approaching 1 or 0.999 or → 1 etc do not score
3	**(b)**		$a_n = 1 - \frac{1}{n+1}$ $n+1$ increases as n increases so $\frac{1}{n+1}$ decreases Less is being taken away from 1 each time so $a_n = 1 - \frac{1}{n+1}$ increases	**M1** **M1** **E1**	**3.1a** **2.4** **2.1**	 Convincing explanation that $\frac{1}{n+1}$ decreases Convincing completion (A.G.) **Special Case (**Max 2 for this method) Correct differentiation and states > 0 to demonstrate increasing **SC B1** Goes on to consider [positive] integers as a subset of reals to complete their argument **SC B1** dep on first **B1**.
				[3]		

			Alternative method 1			
			$\dfrac{n+1}{n+2}$	**M1**		This method is testing $\dfrac{n}{n+1} < \dfrac{n+1}{n+2}$ Formulating expression for (n+1)th or (n-1)th term
			$n(n+2) < (n+1)^2$	**M1**		For formulating inequality and cross multiplying
			$n(n+2) = n^2 + 2n$ and $(n+1)^2 = n^2 + 2n + 1$			
			Expanding brackets to give convincing completion (A.G.)	**E1**		Probably see $\dfrac{n+1}{n+2} > \dfrac{n}{n+1}$ [i.e. increasing]
			Alternative method 2			
			$\dfrac{n+1}{n+2}$	**M1**		Formulating expression for (n+1)th term
			Difference is $\dfrac{n+1}{n+2} - \dfrac{n}{n+1} = \dfrac{(n+1)^2 - n(n+2)}{(n+1)(n+2)}$	**M1**		Finding difference and attempts to form a single fraction eg may be $a_n - a_{n+1}$
			$\dfrac{(n+1)^2 - n(n+2)}{(n+1)(n+2)} = \dfrac{1}{(n+1)(n+2)} > 0$ So sequence is increasing	**E1**		Convincing completion (A.G.)
				[3]		