

11 The n th term of a sequence is defined by $a_n = \frac{1}{\sqrt{n+1}-1} - \frac{1}{\sqrt{n+1}+1}$, for $n \geq 1$.

(a) Prove that every term in the sequence, a_n , is a rational number. **[3]**

(b) Determine whether the sequence is increasing, decreasing or neither. **[2]**