Q1) list the first four terms (up to a_4) of the following sequence

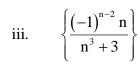
$$a_1 = 1$$
,

$$a_{n+1} = \frac{1}{a_n + 1}$$

Q2) Determine whether the sequence converges or diverges. Find the limit if it is convergent.

i.
$$a_n = \sqrt[2n]{4^n + 3^{2n}}$$

ii.
$$\left\{n^{1/n}\right\}$$



Q2) Explain if the series divergent or Find its sum if it is not.

i.
$$\sum_{n=0}^{\infty} 2^{2n+1} 5^{1-n}$$

ii.
$$\sum_{n=2}^{\infty} \left(\frac{1}{n+1} - \frac{1}{n-1} \right)$$

iii.
$$\sum_{n=1}^{3} \left(\frac{1}{n}\right)$$

iv.
$$\sum_{n=1}^{\infty} \left(\frac{1+2^n}{3^n} \right)$$

v.
$$\frac{1}{\sqrt{1}} + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}} + \frac{1}{\sqrt{4}} + \dots$$