King Fahd University of Petroleum & Minerals
Department of Mathematical Sciences
Math 102 (T.121), Quiz # 7 (11.1 & 11.2)

Family name: Sr. #

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

$a_1 = 1, \qquad a_{n+1} = \dfrac{1}{a_n + 1}$

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

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iii. $\left\{\dfrac{(-1)^{n-2}\, n}{n^3 + 3}\right\}$

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