COMPUTER SCIENCE 20, SPRING 2014

Author: Tawheed Abdul-Raheem

Module #29 (Convergent and Divergent Series)

1. Simplify $\frac{1}{1\cdot 2} + \frac{1}{2\cdot 3} + \frac{1}{3\cdot 4} + \ldots + \frac{1}{99\cdot 100}$. Sum

$$= (\frac{1}{(i)(i+1)} \text{ as i goes from 1 to 100})$$

$$= (\frac{1}{i} - \frac{1}{i+1} \text{ as i goes from 1 to 100})$$

$$= (\frac{1}{1} - \frac{1}{2} + (\frac{1}{2} - \frac{1}{3} \ldots\ldots \frac{1}{100})$$

$$= 1 - (-\frac{1}{2} + \frac{1}{2} - \frac{1}{3} + \ldots\ldots) + \frac{1}{100}$$

$$= \frac{99}{100}$$