Serie

lunedì 20 dicembre 2021 18:58

1) $Z(a_n)^2$ converge allora Za_n converge
   -> Falso siccome, (1/n)^2 converge ma 1/n diverge
2) $Z(a_n)$ converge, allora $(a_n)^2$ converge
3) Somma serie
   $$\sum_{x\to 0}^{+inf}\left(\frac{2}{3}\right)^{2n} = \left(\frac{4}{9}\right)^{n} = \frac{1}{1-\frac{4}{9}} = \frac{9}{5}$$
4) $$\sum \frac{\sqrt{n+1}-\sqrt{n}}{nlog\ n}$$

   $$\sqrt{n+1}-\sqrt{n} = \sqrt{n}\left(\sqrt{1+\frac{1}{n}}-1\right) \sim \frac{\sqrt{n}}{2n} = \frac{1}{2\sqrt{n}}$$

   $$\frac{1}{nlogn} * \frac{1}{2\sqrt{n}} = \frac{1}{2n^{\frac{3}{2}} * \log n}$$

   $a > 1 \to converge$