LETIDEASFLY

A. ~~田~~ 2

(1) $a_n = S_n - S_{n-1} = \frac{2}{n^2+n}$　∴级数为 $\sum_{n=1}^{\infty} \frac{2}{n^2+n}$

设和为S. $S = \lim_{n\to\infty} S_n = 2$

(2) $a_n = S_n - S_{n-1} = \frac{2}{3^n}$　级数为 $\sum_{n=1}^{\infty} \frac{2}{3^n}$

设和为S. $S = \lim_{n\to\infty} S_n = 1$

3.(1) ~~S_n~~ $a_n = \left(\frac{3}{q}\right)^n + \left(\frac{1}{q}\right)^n$　$S_n = \frac{\frac{3}{q} - \left(\frac{3}{q}\right)^{n+1}}{1-\frac{3}{q}} + \frac{\frac{1}{q} - \left(\frac{1}{q}\right)^{n+1}}{1-\frac{1}{q}}$

∵$|q| > 3$　∴S_n收敛

∴ $\sum_{n=1}^{\infty} \frac{3^n+1}{q^n} = \lim_{n\to\infty} S_n = \frac{3}{q-3} + \frac{1}{q-1}$

11.(1) 不正确. 设 $a_n = -\frac{1}{n}$, $b_n = \frac{1}{n^2}$, $\sum_{n=1}^{\infty} b_n$收敛但$\sum_{n=1}^{\infty} a_n$发散

(4) 不正确. 设$a_n = \frac{1}{n}$, $|a_n| = \frac{1}{n}$单调递减且$a_n \to 0 \ (n\to\infty)$但$\sum_{n=1}^{\infty} a_n$发散

12.(7) $n>1$时, $\frac{1}{\sqrt[3]{n^2+1}} > \frac{1}{\sqrt[3]{n^2+n^2}} = \frac{1}{\sqrt[3]{2} \cdot n^{\frac{2}{3}}}$

又∵ $\sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{2} \cdot n^{2/3}}$ 发散 ∴ $\sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{n^2+1}}$ 发散