Sumthing Clever

1. Which of the following series converge? Prove your answer.

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

   (b) $\displaystyle\sum_{n=2}^{\infty}\frac{n}{\ln(n)}$

   (c) $\displaystyle\sum_{n=1}^{\infty}\left(\frac{\cos(2\pi n)(n+1)}{n^2}-\frac{1}{n^2}\right)$

(d) $\displaystyle\sum_{n=3}^{\infty}(-1)^{n+1}\frac{2^n}{3^{n+2}}$

(e) $\displaystyle\sum_{n=1}^{\infty}\frac{2^n+3^n}{6^n}$

(f) $\displaystyle\sum_{k=5}^{\infty}\frac{k^2}{k^2-1}$