Problem:

Determine the type of convergence of the series:

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

Solution:

$$\sum_{n=1}^{\infty} (-1)^{n+1} \cdot \frac{1}{(n+2)^n}, \qquad |a_n| = \frac{1}{(n+2)^n}, \qquad \sum_{n=1}^{\infty} \frac{1}{(n+2)^n} < \sum_{n=1}^{\infty} \frac{1}{3^n} = \frac{\frac{1}{3}}{1-\frac{1}{3}} = \frac{1}{2} < +\infty \Rightarrow$$

$\Rightarrow$ the initial series converges absolutely $\left(\sum_{n=1}^{\infty} |a_n| < \sum_{n=1}^{\infty} \frac{1}{3^n} < +\infty\right)$.

Answer: converges absolutely.