Does $\sum_{n=1}^{\infty} \frac{1}{n^{2/3}}$ diverge, converge absolutely, or converge conditionally?

Solution

$\sum_{n=1}^{\infty} \frac{1}{n^{2/3}}$ is a p-series with $p = \frac{2}{3}$. Since $p \leq 1$, the series $\sum_{n=1}^{\infty} \frac{1}{n^{2/3}}$ diverges by the p-series test.

Other solution

You can also use the Integral Test, but when the p-test works, why work more?