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

Solution

$\sum_{n=1}^{\infty} \frac{3^n}{2^n} = \sum_{n=1}^{\infty} \left(\frac{3}{2}\right)^n$ is a geometric series with $r = \frac{3}{2}$. Since $|r| \geq 1$, the series $\sum_{n=1}^{\infty} \frac{3^n}{2^n}$ diverges by the Geometric Series Test.