Use the Ratio Test to determine whether the series is convergent or divergent.[1]

$$\sum_{n=0}^{\infty} \frac{(-3)^n}{(2n+1)!}$$

We can rewrite our series as

$$\sum_{n=0}^{\infty} \frac{(-1)^n \cdot 3^n}{(2n+1)!}$$

and compute the limit

$$\begin{aligned}
\lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right| &= \lim_{n\to\infty} \left| \frac{\frac{(-1)^{n+1} \cdot 3^{n+1}}{(2(n+1)+1)!}}{\frac{(-1)^n \cdot 3^n}{(2n+1)!}} \right| \\
&= \lim_{n\to\infty} \left| \frac{(-1)^{n+1} \cdot 3^{n+1}}{(2n+3)!} \cdot \frac{(2n+1)!}{(-1)^n \cdot 3^n} \right| \\
&= \lim_{n\to\infty} \left| \frac{(-1)^{n+1}}{(-1)^n} \cdot \frac{3^{n+1}}{3^n} \cdot \frac{(2n+1)!}{(2n+3)!} \right| \\
&= \lim_{n\to\infty} \left| -1 \cdot 3 \cdot \frac{1}{(2n+3)(2n+2)} \right| \\
&= \lim_{n\to\infty} \left| \frac{\frac{-3}{n^2}}{\frac{4n^2}{n^2} + \frac{10n}{n^2} + \frac{6}{n^2}} \right| \\
&= \frac{0}{4+0+0} \\
&= 0
\end{aligned}$$

Since the limit exists and is less than one, the series

$$\sum_{n=0}^{\infty} \frac{(-3)^n}{(2n+1)!}$$

is absolutely convergent by the Ratio Test.

[1] Stewart, *Calculus, Early Transcendentals*, p. 743, #10.