

QUESTION

Find the Taylor series for $\sinh z$ about $z = 0$.

ANSWER

$f(z) = \sinh z$. Now $f(0) = 0$, $f'(0) = 1$, $f''(0) = 0$ etc. so by Taylor's Theorem

$$\sinh z = z + \frac{z^3}{3!} + \frac{z^5}{5!} + \cdots$$