

$$f_4(z) = \sinh^{2014}(z^{100}) = \left( \sum_{n=0}^{\infty} \frac{(-1)^n}{(2n+1)!} (z^{100})^{2n+1} \right)^{2014} =$$

$$= \left( z^{100} - \frac{z^{300}}{3!} + \frac{z^{500}}{5!} - \dots \right)^{2014} =$$

$$= z^{201400} \left( 1 - \frac{z^{200}}{3!} + \dots \right)^{2014}$$

