Problem for 2017 July

Communicated by Dan Jurca

\( f: \mathbb{R} \rightarrow \mathbb{R} \) by \( f(x) = 120x^7 \sin^2(x^{1,000})e^{x^2} \); evaluate the 2,017-th derivative of \( f \) at 0, \( f^{(2017)}(0) \).