

Problem 1772. *Proposed by Rick Mabry, Louisiana State University at Shreveport, Shreveport, LA.*

Let n be an even positive integer and let a be a real number. Let $T_n(x; a)$ denote the degree n Taylor polynomial at the point $x = a$ for the exponential function e^x .

- (a) Prove that for each real a , the polynomial $T_n(x; a)$ assumes its minimum at a unique point.
- (b) Let t_a denote the value of x for which $T_n(x; a)$ assumes its minimum. Prove that the planar set

$$\{(t_a, T_n(t_a; a)) : a \in \mathbb{R}\}$$

is itself the graph of an exponential function.