5. [12 points] Let \( f(x) \) be a differentiable function defined for all real \( x \) with derivative
\[
f'(x) = (e^{x-1}) x^4(x + 4)(x - 3)^2.
\]
a. [3 points] Find the \( x \)-coordinates of all critical points of \( f(x) \).

**Answer:** critical point(s) at \( x = \) __________________________

b. [6 points] Find the \( x \)-coordinates of all local extrema of \( f(x) \). If there are none of a particular type, write NONE.

*Justify your answers, and be sure to show enough evidence to demonstrate that you have found all local extrema.*

**Answer:** local min(s) at \( x = \) __________________________

**Answer:** local max(es) at \( x = \) __________________________

c. [3 points] Suppose \( f(1) = -7 \). Use the tangent line approximation to \( f(x) \) at \( x = 1 \) to estimate \( f(1.1) \).

**Answer:** \( f(1.1) \approx \) __________________________