1. Find the absolute minimum and maximum values of function $f$ on the given interval. $f(x) = 5x^{2/3}$ on the interval $[-8, 1]$. Support your answer with the appropriate calculations.
2a. Record the domain of \( g(x) = 3x^2e^{-4x} \). Calculate the \( x \)-intercepts of \( y = g(x) \).

2b. Calculate the first derivative of \( g(x) = 3x^2e^{-4x} \).
2c. Calculate the critical numbers of \( g(x) = 3x^2e^{-4x} \).

2d. Record the intervals upon which \( y = g(x) \) is increasing. Support your answer with the appropriate analysis.
2e. Calculate the second derivatives of \( g(x) = 3x^2 e^{-4x} \).

2f. Calculate the possible points of inflection for \( g(x) = 3x^2 e^{-4x} \).

2g. Determine the intervals on which \( y = g(x) \) is concave upward and concave downward.