1. This problem concerns the function $f(x) = 5 - x^3 e^x$.

    (a) Find the critical points of f.

    (b) Find the intervals on which f increases and on which it decreases.

    (c) Use your answer from part (a) to identify the locations (x values) of any local extrema of f. For each such x, say whether there is a local max or local min there.

1. This problem concerns the function $f(x) = 3\sqrt[3]{x} - x$.

   (a) Find the critical points of f.

   (b) Find the intervals on which f increases and on which it decreases.

   (c) Use your answer from part (a) to identify the locations (x values) of any local extrema of f. For each such x, say whether there is a local max or local min there.