1. Let \( f(x) = x^3 - 3x^2 + 12 \).
   
   a. Find \( f'(x) \) and \( f''(x) \).
   
   b. Solve \( f'(x) = 0 \) and \( f''(x) = 0 \).
   
   c. Graph \( f(x) \), \( f'(x) \) and \( f''(x) \). Use different colors for each function.
   
   d. Label the relative extremes A and the inflection points B on the graph of \( f(x) \). Label the corresponding points A' and B' on the graph of \( f'(x) \). Label the corresponding point B'' on the graph of \( f''(x) \).
   
   e. List the intervals where \( f(x) \) is increasing. Where is \( f'(x) > 0 \)?
   
   f. List the intervals where \( f(x) \) is decreasing. Where is \( f'(x) < 0 \)?
   
   g. List the intervals where \( f(x) \) is concaved up. Where is \( f''(x) > 0 \)?
   
   h. List the intervals where \( f(x) \) is concaved down. Where is \( f''(x) < 0 \)?