9I Concave & Convex Functions

1. Find the interval on which the function $f(x) = x^3 + 4x + 3$ is concave.

2. Show that the function $f(x) = e^{2x} + x^2$ is convex for all real values of x.

3. The curve C has equation $y = x^3 - 2x^2 - 4x + 5$

a) Show that C is concave on the interval $[-2,0]$ and convex on the interval $[1,3]$

b) Find the coordinates of the point of inflection