

7. [14 points] For positive A and B , the force between two atoms is a function of the distance, r , between them:

$$f(r) = -\frac{A}{r^2} + \frac{B}{r^3} \quad r > 0.$$

- a. [2 points] Find the zeroes of f (in terms of A and B).
- b. [7 points] Find the coordinates of the critical points and inflection points of f in terms of A and B .
- c. [5 points] If f has a local minimum at $(1, -2)$ find the values of A and B . Using your values for A and B , justify that $(1, -2)$ is a local minimum.