

6. [10 points] The force F , in Newtons, between two atoms a distance r femtometers (fm) apart in a molecule is given by $F(r) = b \left(\frac{a^2}{r^3} - \frac{a}{r^2} \right)$ for some positive constants a and b .

Note: Your answers below might involve the constants a and b .

- a. [3 points] Find and interpret any horizontal intercept(s) of the graph of $F(r)$.

- b. [3 points] Find any asymptote(s) of the graph of $F(r)$.

- c. [4 points] Give the practical interpretation of $F'(1) = -1.2 \times 10^{-9}$.