(b) A particle P of mass m moves along a straight line joining two fixed points A and B. The particle is under the action of two forces F_A and F_B. F_A acts towards the point A and has magnitude $2\mu m d_A$ where d_A is the distance of the point P from A. F_B acts towards the point B and has magnitude $\mu m d_B$ where d_B is the distance of the point P from B. Given that μ is a constant, shows that the motion of P is simple harmonic. Deduce an expression for the period of motion. During the oscillation, the particle is instantaneously at rest at the mid-point of AB. What is the amplitude of the oscillation and what is the kinetic energy of the particle when it is at O, the point where it experiences zero net force? [6 marks]