Problem 37: The three spheres in Fig. 13-44, with masses $m_A = 80$ g, $m_B = 10$ g, and $m_C = 20$ g, have their centers on a common line, with $L = 12$ cm and $d = 4.0$ cm. You move sphere $B$ along the line until its center-to-center separation from $C$ is $d = 4.0$ cm. How much work is done on sphere $B$ (a) by you and (b) by the net gravitational force on $B$ due to spheres $A$ and $C$?

![Diagram of three spheres](image)

Problem 38: In deep space, sphere $A$ of mass 20 kg is located at the origin of an $x$ axis and sphere $B$ of mass 10 kg is located on the axis at $x = 0.80$ m. Sphere $B$ is released from rest while sphere $A$ is held at the origin. (a) What is the gravitational potential energy of the two-sphere system just as $B$ is released? (b) What is the kinetic energy of $B$ when it has moved 0.20 m toward $A$?