29.7. **Model:** The charges are point charges.
Visualize: Please refer to Figure Ex29.7.
Solve: The electric potential energy of the electron is

$$U_{\text{electron}} = U_{13} + U_{23}$$

$$= \left(9.0 \times 10^9 \ \text{N m}^2 \ / \ \text{C}^2\right)\left[\frac{\left(1.60 \times 10^{-19} \ \text{C}\right)\left(-1.60 \times 10^{-19} \ \text{C}\right)}{\sqrt{\left(2.0 \times 10^{-9} \ \text{m}\right)^2 + \left(0.5 \times 10^{-9} \ \text{m}\right)^2}} + \frac{\left(1.60 \times 10^{-19} \ \text{C}\right)\left(-1.60 \times 10^{-19} \ \text{C}\right)}{\sqrt{\left(2.0 \times 10^{-9} \ \text{m}\right)^2 + \left(0.5 \times 10^{-9} \ \text{m}\right)^2}}\right]$$

$$= -1.12 \times 10^{-19} \ \text{J} - 1.12 \times 10^{-19} \ \text{J} = -2.24 \times 10^{-19} \ \text{J}$$