

$$\begin{aligned} A_{12} &= \int_1^2 F_{31} \cos(\vec{F} \wedge d\vec{s}) ds = - \int_{R_1}^{R_2} \frac{kQq}{r^2} dr = \\ &= -kQq \int_{R_1}^{R_2} r^{-2} dr = kQq \frac{1}{r} \Big|_{R_1}^{R_2} = kQq \left(\frac{1}{R_2} - \frac{1}{R_1} \right). \quad (2.10) \end{aligned}$$