$$d\vec{F_q} \quad = k\frac{q \cdot dQ}{r_{12}^2}\hat{r}_{21} \tag{1}$$

$$= k\frac{q \cdot \lambda dL}{r_{12}^2}\hat{r}_{21} \tag{2}$$

$$= k\frac{q \cdot \lambda dL}{L^2 + x^2}\hat{r}_{21} \tag{3}$$

$$\tag{4}$$