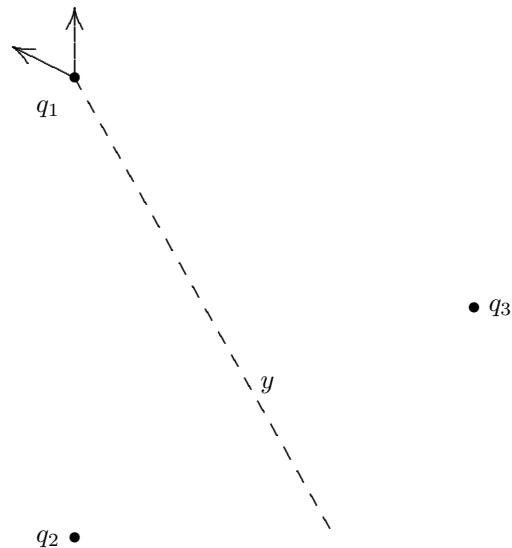


35. (a) Eq. 22-1 gives

$$F_{12} = k \frac{q_1 q_2}{d^2} = \left(8.99 \times 10^9 \frac{\text{N} \cdot \text{m}^2}{\text{C}^2} \right) \frac{(20.0 \times 10^{-6} \text{ C})^2}{(1.50 \text{ m})^2} = 1.60 \text{ N} .$$

(b) A force diagram is shown as well as our choice of y axis (the dashed line).



The y axis is meant to bisect the line between q_2 and q_3 in order to make use of the symmetry in the problem (equilateral triangle of side length d , equal-magnitude charges $q_1 = q_2 = q_3 = q$). We see that the resultant force is along this symmetry axis, and we obtain

$$|F_y| = 2 \left(k \frac{q^2}{d^2} \right) \cos 30^\circ = 2.77 \text{ N} .$$