

51. The individual force magnitudes are found using Eq. 22-1, with SI units (so $a = 0.02$ m) and k as in Eq. 22-5. We use magnitude-angle notation (convenient if ones uses a vector capable calculator in polar mode), listing the forces due to $+4.00q$, $+2.00q$, and $-2.00q$ charges:

$$(4.60 \times 10^{-24} \angle 180^\circ) + (2.30 \times 10^{-24} \angle -90^\circ) + (1.02 \times 10^{-24} \angle -145^\circ) = (6.16 \times 10^{-24} \angle -152^\circ)$$

Therefore, the net force has magnitude 6.16×10^{-24} N and is at an angle of -152° (or 208° measured counterclockwise from the $+x$ axis).