2. We use $\Phi = \vec{E} \cdot \vec{A}$, where $\vec{A} = A\hat{\mathrm{j}} = (1.40\mathrm{m})^2 \hat{\mathrm{j}}$.

(a) $\Phi = (6.00\ \mathrm{N/C})\hat{\mathrm{i}} \cdot (1.40\ \mathrm{m})^2 \hat{\mathrm{j}} = 0.$

(b) $\Phi = (-2.00\ \mathrm{N/C})\hat{\mathrm{j}} \cdot (1.40\ \mathrm{m})^2 \hat{\mathrm{j}} = -3.92\ \mathrm{N \cdot m^2/C}.$

(c) $\Phi = \left[(-3.00\ \mathrm{N/C})\hat{\mathrm{i}} + (400\,\mathrm{N/C})\hat{\mathrm{k}}\right] \cdot (1.40\ \mathrm{m})^2 \hat{\mathrm{j}} = 0$.

(d) The total flux of a uniform field through a closed surface is always zero.