7. (a) Let $A = (1.40\,\mathrm{m})^2$. Then

$$\begin{aligned}\Phi &= (3.00y\,\hat{\mathrm{j}}) \cdot (-A\,\hat{\mathrm{j}})|_{y=0} + (3.00y\,\hat{\mathrm{j}}) \cdot (A\,\hat{\mathrm{j}})|_{y=1.40} \\ &= (3.00)(1.40)(1.40)^2 = 8.23\ \mathrm{N{\cdot}m^2/C}\ .\end{aligned}$$

(b) The electric field can be re-written as $\vec{E} = 3.00y\hat{\mathrm{j}} + \vec{E}_0$, where $\vec{E}_0 = -4.00\hat{\mathrm{i}} + 6.00\hat{\mathrm{j}}$ is a constant field which does not contribute to the net flux through the cube. Thus Φ is still $8.23\,\mathrm{N{\cdot}m^2/C}$.

(c) The charge is given by

$$q = \varepsilon_0 \Phi = \left(8.85 \times 10^{-12}\,\frac{\mathrm{C^2}}{\mathrm{N{\cdot}m^2}}\right)(8.23\,\mathrm{N{\cdot}m^2/C}) = 7.29 \times 10^{-11}\ \mathrm{C}$$

in each case.