13. The forces are all constant, so the total work done by them is given by $W = F_{\text{net}}\,\Delta x$, where F_{net} is the magnitude of the net force and Δx is the magnitude of the displacement. We add the three vectors, finding the x and y components of the net force:

$$\begin{aligned}
F_{\text{net}\,x} &= -F_1 - F_2 \sin 50^\circ + F_3 \cos 35^\circ \\
&= -3.00\,\text{N} - (4.00\,\text{N}) \sin 35^\circ + (10.0\,\text{N}) \cos 35^\circ \\
&= 2.127\ \text{N} \\
F_{\text{net}\,y} &= -F_2 \cos 50^\circ + F_3 \sin 35^\circ \\
&= -(4.00\,\text{N}) \cos 50^\circ + (10.0\,\text{N}) \sin 35^\circ \\
&= 3.165\ \text{N}\ .
\end{aligned}$$

The magnitude of the net force is

$$F_{\text{net}} = \sqrt{F^2_{\text{net}\,x} + F^2_{\text{net}\,y}} = \sqrt{2.127^2 + 3.165^2} = 3.813\ \text{N}\ .$$

The work done by the net force is

$$W = F_{\text{net}}\, d = (3.813\,\text{N})(4.00\,\text{m}) = 15.3\ \text{J}$$

where we have used the fact that $\vec{d} \parallel \vec{F}_{\text{net}}$ (which follows from the fact that the canister started from rest and moved horizontally under the action of horizontal forces – the resultant effect of which is expressed by $\vec{F}_{\text{net}}$).