52. We use Eq. 8-29

$$\Delta E_{\text{th}} = f_k d = (10\,\text{N})(5.0\,\text{m}) = 50\ \text{J}$$

and Eq. 7-8

$$W = Fd = (2.0\,\text{N})(5.0\,\text{m}) = 10\ \text{J}$$

and Eq. 8-31

$$\begin{aligned} W &= \Delta K + \Delta U + \Delta E_{\text{th}} \\ 10 &= 35 + \Delta U + 50 \end{aligned}$$

which yields $\Delta U = -75$ J. By Eq. 8-1, then, the work done by gravity is $W = -\Delta U = 75$ J.