87. Equating the mechanical energy at his initial position (as he emerges from the canon, where we set the reference level for computing potential energy) to his energy as he lands, we obtain

$$
\begin{aligned}
K_i &= K_f + U_f \\
\frac{1}{2}(60\,\text{kg})(16\,\text{m/s})^2 &= K_f + (60\,\text{kg})\left(9.8\,\text{m/s}^2\right)(3.9\,\text{m})
\end{aligned}
$$

which leads to $K_f = 5.4 \times 10^3$ J.