60. (a) Since the initial momentum is zero, then the final momenta must add (in the vector sense) to 0. Therefore, with SI units understood, we have

$$\begin{aligned}
\vec{p}_3 &= -\vec{p}_1 - \vec{p}_2 \\
&= -m_1\vec{v}_1 - m_2\vec{v}_2 \\
&= -\left(16.7\times 10^{-27}\right)\left(6.00\times 10^{6}\,\hat{\mathrm{i}}\right) - \left(8.35\times 10^{-27}\right)\left(-8.00\times 10^{6}\,\hat{\mathrm{j}}\right) \\
&= -1.00\times 10^{-19}\,\hat{\mathrm{i}} + 0.67\times 10^{-19}\,\hat{\mathrm{j}}\ \text{kg·m/s}\ .
\end{aligned}$$

(b) Dividing by $m_3 = 11.7\times 10^{-27}$ kg and using Pythagorean's theorem we find the speed of the third particle to be $v_3 = 1.03\times 10^{7}$ m/s. The total amount of kinetic energy is

$$\frac{1}{2}m_1v_1^2 + \frac{1}{2}m_2v_2^2 + \frac{1}{2}m_3v_3^2 = 1.19\times 10^{-12}\,\text{J}\ .$$