20. (a) We choose $+x$ along the initial direction of motion and apply momentum conservation:

$$\begin{aligned} m_{\text{bullet}}\vec{v}_i &= m_{\text{bullet}}\vec{v}_1 + m_{\text{block}}\vec{v}_2 \\ (5.2\,\text{g})(672\,\text{m/s}) &= (5.2\,\text{g})(428\,\text{m/s}) + (700\,\text{g})\vec{v}_2 \end{aligned}$$

which yields $v_2 = 1.81$ m/s.

(b) It is a consequence of momentum conservation that the velocity of the center of mass is unchanged by the collision. We choose to evaluate it before the collision:

$$\vec{v}_{\text{com}} = \frac{m_{\text{bullet}}\vec{v}_i}{m_{\text{bullet}} + m_{\text{block}}} = \frac{(5.2\,\text{g})(672\,\text{m/s})}{5.2\,\text{g} + 700\,\text{g}}$$

which gives the result $\vec{v}_{\text{com}} = 4.96$ m/s.