

1 | (a)

See diagram

2 | (b)

The momentum of the flatcar's initial state with N armadillos is given by $p_{\text{car};0} = v_{\text{car};0}(M + Nm)$. The momentum of the armadillos (as a collective) jumping off of the flatcar is given by $p_{\text{armadillos};0} = Nm v_{\text{armadillos};0}$.