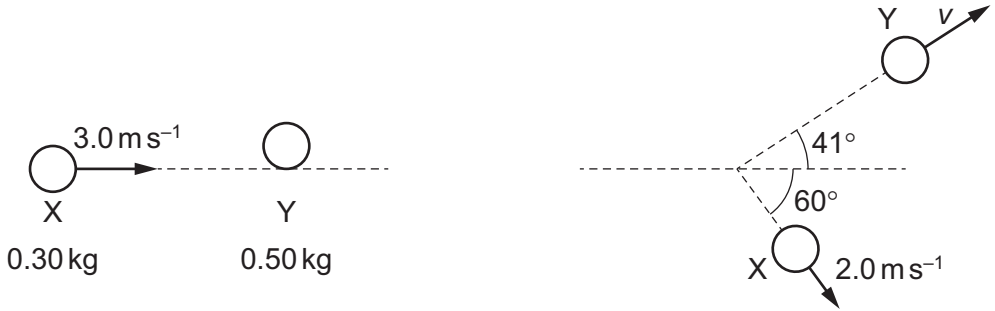
10 An object X of mass 0.30 kg is travelling in a straight line at a constant velocity of $3.0\,m\,s^{-1}$ on a horizontal frictionless surface. Object X collides with a stationary object Y of mass 0.50 kg.

After the collision, X moves with a velocity of $2.0\,m\,s^{-1}$ at an angle of 60° to its direction before the collision. Object Y moves with a velocity v at an angle of 41° to the direction of X before the collision, as shown.



What is the value of v?

A $0.80\,m\,s^{-1}$ **B** $1.2\,m\,s^{-1}$ **C** $1.6\,m\,s^{-1}$ **D** $1.8\,m\,s^{-1}$