Question Number	Answer	Mark
15(a)	Total momentum is conserved (because no external forces act) **Or** Total momentum before is equal to total momentum after (because no external forces act) **Or** Momentum of system is conserved (because no external forces act) **(1)** Total/system/initial momentum is zero **(1)** (Final momentum of machine is not zero because) final ball momentum is not zero **Or** Machine and ball have (equal but) opposite momenta **(1)**	**3**
15(b)	Use of $p = mv$ **(1)** Use of conservation of momentum **(1)** Velocity of machine = (−)0.087 m s^{-1} **(1)** Example calculation 2.9 kg × v + 0.056 kg × 4.5 m s^{-1} = 0 v = −0.252 m kg s^{-1} ÷ 2.9 kg = −0.0869 m s^{-1}	**3**
	Total for question 15	**6**