

Question Number	Answer	Mark
12(a)	<p>the total momentum before (a collision) = the total momentum after (a collision)</p> <p>Or</p> <p>Sum of momentum values before (collision) = sum of momentum values after (collision)</p> <p>Or</p> <p>total momentum remains constant</p> <p>Or</p> <p>the momentum of a system remains constant</p> <p>Provided no external/unbalanced/resultant force acts (on the system)</p> <p>Or</p> <p>in a closed/isolated system</p>	<p>(1)</p> <p>(1)</p> <p>2</p>
12(b)	<p>Use of $p = m v$</p> <p>Uses conservation of momentum</p> <p>Velocity = -4.6 m s^{-1}</p> <p><u>Example of calculation</u></p> <p>$2.7 \text{ kg} \times 10 \text{ m s}^{-1} = 2.7 \text{ kg} \times v + 7.9 \text{ kg} \times 5.0 \text{ m s}^{-1}$</p> <p>$v = (27.0 - 39.5) \text{ kg m s}^{-1} \div 2.7 \text{ kg} = -4.6(3) \text{ m s}^{-1}$</p>	<p>(1)</p> <p>(1)</p> <p>(1)</p> <p>3</p>
	Total for question 12	5