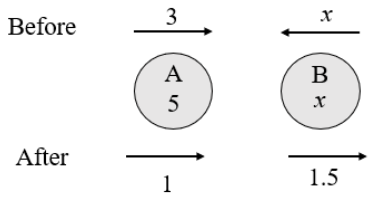
| QUESTION NUMBER | SCHEME | MARKS |
|---|---|---|
| **2** |  | |
| **2(a)** | CLM<br>$(5\times3)-x^2=(5\times1)+(x\times1.5)$<br>**OR:** $5(-1--3)=x(1.5--x)$ | M1A1 |
| | $x=2.5$ | A1 |
| | | (3) |
| **2(b)** | $I=\pm5(1-3)$ or $I=\pm2.5(1.5--2.5)$ $(I=\pm x(1.5--x))$ | M1A1 |
| | $\lvert I\rvert=10$ (Ns) | A1 |
| | | (3) |
| | | **(6)** |
| | **Notes for question 2** | |
| **(a)**<br>**M1**<br><br><br>**A1**<br>**A1** | <br>Forms CLM equation OR equates impulses, condone sign errors and extra *g*'s and any correct cancellation, to give an equation in *x* only.<br>Correct unsimplified equation<br>Correct answer. If – 4 is seen, it must be rejected. (ignore units) | |
| **(b)**<br>**M1**<br><br><br><br><br><br><br><br>**A1**<br>**A1** | <br>Impulse-momentum equation, dimensionally correct, correct no. of terms for *A* or *B*.<br>Condone sign errors but must be *attempting* a difference of momenta e.g. allow if they first state $I=\pm m(v-u)$ but then make a sign error and end up with a sum.<br>If they clearly add the momenta, and there is no formula stated, M0.<br>*x* does not need to be substituted.<br>M0 if *g* is included.<br>Correct numerical expression.<br>cao must be positive. Ignore missing or wrong units.<br>A0 if both 10 and another answer are given. | |