2(a)	$3\times4=3\times(-1)+5\times v$ **or** $3\times4=3\times1+5v$
	$v=3\text{ m s}^{-1}$
	$v=1.8\text{ m s}^{-1}$
2(b)	KE = $\frac{1}{2}\times3\times4^2\ (=24)$ **or** KE = $\frac{1}{2}\times3\times1^2+\frac{1}{2}\times5\times1.8^2\ (=9.6)$ **or** KE = $\frac{1}{2}\times3\times1^2+\frac{1}{2}\times5\times3^2\ (=24)$
	$\lambda=14.4$ ONLY

6	Acceleration of A down the plane is $g\times0.2[=2]$
	Speed of A before collision is $g\times0.2\times2[=4]$
	$3\times3.5+2.5\times(-4)=3\times(-0.5)+2.5\times u$
	$u=0.8$
	$0=0.8^2+2\times\left(-g\times\frac{1}{5}\right)\times s$
	$s=0.16$ m

4(a)	[Height gained by $P\ (s_P)$ =]$30t-\frac{1}{2}gt^2$ [Height lost by $Q\ (s_Q)$ =]$10t-\frac{1}{2}gt^2$
	Meet when $30t-\frac{1}{2}gt^2=10t-\frac{1}{2}gt^2+15$
	$t=\frac{3}{4}$ or 0.75
	Height = 19.6875 m or $\frac{315}{16}$ m

4(b)	$[v_P =] \pm\left(30 - \frac{3}{4}g\right) [= \pm 22.5]$ $\quad [v_Q =] \pm\left(10 - \frac{3}{4}g\right) [= \pm 2.5]$ **OR** $[v_P =] \pm\sqrt{30^2 - 2g \times 19.6875} [= \pm 22.5]$ $[v_Q =] \pm\sqrt{10^2 - 2g \times (19.6875 - 15)} [= \pm 2.5]$
	$0.1 \times 22.5 + 0.4 \times 2.5 = (0.1 + 0.4) \times v_{PQ}$
	$v_{PQ} = 6.5$
	$v^2 = their\ 6.5^2 + 2g \times their\ 19.6875$ **OR** $0 = their\ 6.5^2 + 2(-g)s \quad \Rightarrow s = 2.1125,$ height above ground $= 2.1125 + 19.6875 = 21.8$ hence $v^2 = 0^2 + 2g \times 21.8$
	Speed = 20.9 ms^{-1} or $2\sqrt{109}$ ms^{-1}

5(a)	$\frac{1}{2}mu^2 = 16$
	$mu = 4$
	$u = 8, m = 0.5$
5(b)	$0.5 \times v = 0.5w + 1.25 \times 2w \quad [v = 6w]$
	$\frac{1}{2} \times 0.5 \times v^2 - \left(\frac{1}{2} \times 0.5 \times w^2 + \frac{1}{2} \times 1.25 \times (2w)^2\right) = \pm 25$
	$9w^2 - \frac{1}{4}w^2 - 2.5w^2 - 25 = 0 \quad \left[\frac{25}{4}w^2 = 25\right]$
	$w = 2, v = 12$