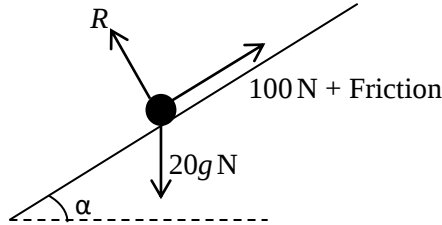
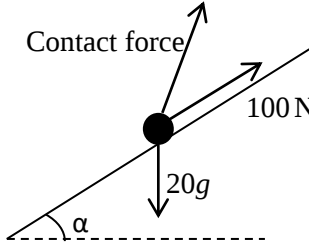


Question			Answer	Marks	AO	Guidance	
10	(a)		 Resolve parallel to the slope: $100 + F - 20g \sin \alpha = 0$ (*) Resolve perpendicular to the slope and friction force is maximum: $R = 20g \cos \alpha$ and $F = \mu R$ Substitute and obtain $20g \sin \alpha = 20g \mu \cos \alpha + 100$	B1 M1 M1 E1 [4]	2.1 3.3 3.3 1.1	Any equivalent which makes clear the relationships between: Reaction, 100 N force, friction acting upwards, weight of $20g$ N A diagram is not <i>necessary</i> provided that sufficient explanation is given. AG	OR 
10	(b)		All forces shown on diagram of inclined plane Resolve parallel to the slope: $150 - F - 20g \sin \alpha = 0$ (**) From * and ** $250 - 40g \sin \alpha = 0$ $\alpha = \sin^{-1} \frac{25}{4g}$	B1 M1 A1 [3]	3.3 3.4 1.1	Reaction, 150 N force, friction acting downwards, weight of $20g$ N Eliminate μ and attempt to solve for α .	One valid step after elimination required