

Question Number	Scheme	Marks
3(a)		
	$(\square), 14.7 \cos \alpha = 2g \sin \alpha + F$ (could be $-F$ ) <b>OR:</b> $(\rightarrow), 14.7 + F \cos \alpha = R \sin \alpha$ <b>AND</b> eliminate $R$ to give an $(\uparrow), R \cos \alpha + F \sin \alpha = 2g$ equation in $F$ only.  <u>Verification methods</u>	
	$14.7 \cos \alpha = (11.76) = 2g \sin \alpha$ (i.e. verification that $X = 14.7 \Rightarrow F = 0$ )  <b>OR:</b> $X \cos \alpha = 2g \sin \alpha \Rightarrow X = 14.7$ (i.e. verification that $F = 0 \Rightarrow X = 14.7$ )	M1 A1
	so $F = 0^*$ oe	A1*
		(3)
3(b)	$F_1 = 0.5S$	B1
	Two equations taken from: $(\square), X \cos \alpha + F_1 = 2g \sin \alpha$ $(\square), S = X \sin \alpha + 2g \cos \alpha$ $(\rightarrow), X + F_1 \cos \alpha = S \sin \alpha$ $(\uparrow), S \cos \alpha + F_1 \sin \alpha = 2g$	M1A2 M1A2