Question			Answer	Marks	AO	Guidance	
3	(a)	(i)	29 (m)	B1 [1]	1.1		
3	(a)	(ii)	1 (m)	B1 [1]	1.1		
3	(b)		$15-14\cos(150k)=1 \Rightarrow \cos(150k)=1$	M1	3.1b	Setting given expression equal to **(a)(ii)** and re-arranging to get $\cos(150k)=...$ **or** for stating $150k=360$	Must substitute/use t = 150 for this method mark. May use t = 75 with h = 29 $150k = 2\pi$, (i.e. using radians) **M1**
			$150k=360 \Rightarrow k=2.4$	A1 [2]	1.1	The correct answer only implies the **M** mark so "k = 2.4" without working is **M1A1**.	
3	(c)		$15-14\cos(kt)=20 \Rightarrow \cos(kt)=-\frac{5}{14}$	M1*	3.1b	Setting given expression equal to 20 to obtain an equation of the form $\cos(kt)=k_1$	Could use inequalities Need $-1 \leqslant k_1 \leqslant 1$
			$t=46.2186....,103.7813$	M1dep*	1.1	Obtaining at least one value of t correctly from their equation above	$2.4t=110.9248...,249.0751...$
			$103.7813...-46.2186...$ or $150-(2\times 46.2186)$ o.e.	M1	1.1	Subtracting their two positive values of t (**both** obtained correctly from their equation above) or $150-(2\times$ their $t)$	**Dependent on previous two M marks**
			Therefore above 20 m for 57.6 (s)	A1 [4]	3.2a	Must be to 1 decimal place	57.562639… **A0** if using radians.