Question	Answer	Marks	Guidance
3(a)	$\left(2e^{3x}-5\right)\left(e^{3x}+1\right)=0$	**M1**	For attempt to solve a 3-term quadratic equation in e^{3x}, or using an appropriate substitution. May also be implied by correct use of quadratic formula
	$x=\frac{1}{3}\ln\frac{5}{2}$	**2**	**Dep M1** for a correct attempt to obtain x = … **A1** cao with negative root discounted.
3(b)	$e^{-x-7-7y}=e^{-2}$	**M1**	For correct attempt to deal with powers of e
	$x+7y=-5$	**A1**	
	$x^2+5x-126=0$ or $7y^2+5y-18=0$	**M1**	**Dep** for attempt to obtain a 3-term quadratic equation equated to zero in either x or y
	$x=-14,\ \ x=9$	**A1**	For both
	$y=\frac{9}{7},\ \ y=-2$	**A1**	For both
4(a)	Intercept = –2 soi	**B1**	
	$e^{4y}=\frac{2}{5}x-2$	**M1**	For attempt at straight line equation with *their* intercept
	$y=\frac{1}{4}\ln\left(\frac{2}{5}x-2\right)$ oe	**A1**	
4(b)	$y=\frac{1}{4}\ln 16$	**M1**	**Dep** on **M1** in part (a)
	$y=\ln 2$	**A1**	
4(c)	$x>5$	**1**	
5(a)	Acceleration $=18\cos 3t$	**2**	**B1** for $k\cos 3t$, $k\neq 2,\ k>0$
	$\cos 3t=-\frac{1}{2}$ oe	**M1**	For attempt to solve *their* $\cos 3t=-\frac{1}{2}$ to obtain a value for t
	$t=\frac{2\pi}{9}$ or 0.698	**A1**	