Question	Answer	Marks	Guidance
5(b)	$ar^2 = a + 4(ar - a)$	**M1**	For $ar = a + d$, $ar^2 = a + 4d$ or for $ar^2 = a + k(ar - a)$ $(k > 2)$ with a correct attempt to eliminate d
	$r^2 - 4r + 3 = 0$	**A1**	
	$(r - 3)(r - 1) = 0$ or formula	**M1**	**Dep** for solving *their* 3-term quadratic
	$r = 3$ only	**A1**	
	Alternative method		
	$\frac{a+d}{a} = \frac{a+4d}{a+d}$	**(M1)**	
	$\Rightarrow d = 2a$	**(A1)**	
	$r = \frac{a+2a}{a}$	**(M1)**	**Dep**
	$r = 3$	**(A1)**	
6	$x^2 - 5x = 6 \Rightarrow x^2 - 5x - 6 = 0$ $(x - 6)(x + 1) = 0$	**M1**	or $x = \frac{5 \pm \sqrt{25 - 4 \times (-6)}}{2}$
	$x = 6$ or -1	**A1**	
	$x^2 - 5x = -6 \Rightarrow x^2 - 5x + 6 = 0$	**M1**	
	$(x - 3)(x - 2) = 0$	**M1**	or $x = \frac{5 \pm \sqrt{25 - 4 \times 6}}{2}$
	$x = 3$ or 2	**A1**	
	Alternative method		
	$(x^2 - 5x)^2 = 36$	**(M1)**	
	$x^4 - 10x^3 + 25x^2 - 36 = 0$	**(A1)**	
	$(x - 3)(x - 2)(x - 6)(x + 1) = 0$	**(M1)**	Attempt to factorise into 4 brackets
	$x = -1$ or 2 or 3 or 6	**(A1A1)**	**A1** for any two

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Question	Answer	Marks	Guidance
7(a)	$\frac{e^{1-3x}(\cos x-\sin x)-(\sin x+\cos x)\times(-3)e^{1-3x}}{(e^{1-3x})^2}$	**4**	**B1** for $-3e^{1-3x}$ **B1** for $\cos x-\sin x$ **M1** for differentiation of quotient or equivalent correct product **A1 FT** on *their* $-3e^{1-3x}$ and *their* $\cos x-\sin x$
7(b)	$\int\left(\sec^2 3x\right)dx$	**M1**	Use of $\sec^2 3x=1+\tan^2 3x$
	$\frac{1}{3}\tan 3x+c$ oe	**2**	**A1** if + *c* omitted
8	$(1-6y)^2-8y^2=-2y+12y^2$ oe	**M1**	Equation in one variable only, in any form. Allow one arithmetical error
	$16y^2-10y+1[=0]$	**A1**	
	$(2y-1)(8y-1)$ [= 0]	**M1**	Attempt to factorise or use formula for *their* 3-term quadratic
	$y=\frac{1}{2}$, $x=-2$ $y=\frac{1}{8}$, $x=\frac{1}{4}$	**2**	Correct pairs seen or implied **A1** for any two correct values
9(a)	As *v*–*t* graph but negative portion reflected in *x*-axis	**B1**	
9(b)	Straight line with positive gradient	**B1**	
	Straight line starting at *O*	**B1**	

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