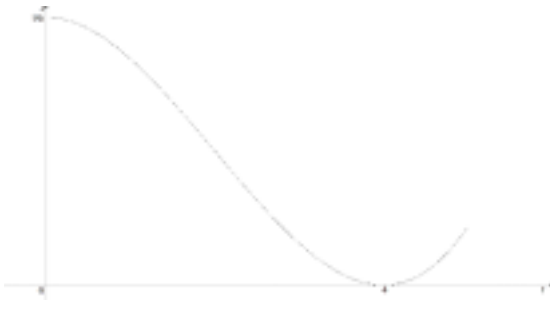
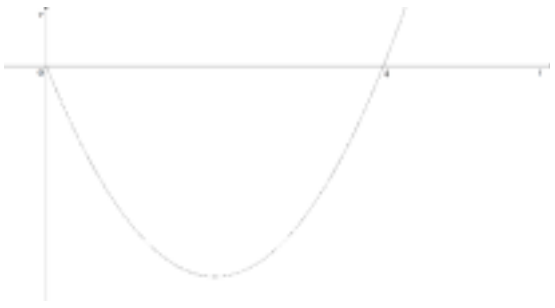
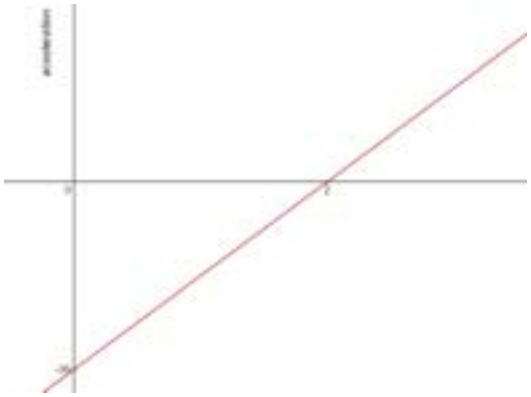
Question	Answer	Marks	Guidance
8(b)	$\frac{2}{5}\mathbf{a}+\frac{1}{2}\left(their\ \left(\mathbf{b}-\mathbf{a}\right)\right)$ soi oe	**M1**	
	$\frac{1}{2}\mathbf{b}-\frac{1}{10}\mathbf{a}$	**A1**	Allow unsimplified
8(c)	$\left(\lambda+1\right)\times\left(\frac{1}{2}\mathbf{b}-\frac{1}{10}\mathbf{a}\right)$ oe	**2**	**M1** for $\left(\lambda+1\right)\times their\left(\frac{1}{2}\mathbf{b}-\frac{1}{10}\mathbf{a}\right)$ **A1** allow unsimplified
8(d)	$-\frac{3}{5}\mathbf{a}+\left(\mu+1\right)\mathbf{b}$ oe	**2**	**B1** for each vector, allow unsimplified.
8(e)	$\left(\lambda+1\right)\times\left(\frac{1}{2}\mathbf{b}-\frac{1}{10}\mathbf{a}\right)=-\frac{3}{5}\mathbf{a}+\left(\mu+1\right)\mathbf{b}$ $\lambda=5$ $\mu=2$	**3**	**M1** for equating $\left(\lambda+1\right)\times their\left(\frac{1}{2}\mathbf{b}-\frac{1}{10}\mathbf{a}\right)$ and *their* $-\frac{3}{5}\mathbf{a}+\left(\mu+1\right)\mathbf{b}$ **and** then equating like vectors at least once. **A1** for each.
9(a)	$v=9t\left(t-4\right)$ oe	**2**	**M1** for correct attempt to differentiate, allow one arithmetic error.
	$t=0,\ t=4$	**2**	**Dep M1** for equating *their v* to zero and attempt to solve. **A1** for both.
9(b)		**3**	**B1** for correct cubic curve for given domain **B1** for $\left(0,\ 96\right)$ and no other intercept on the *y*-axis **B1** for touching at $\left(4,\ 0\right)$ and no other intercept on the *x*-axis
9(c)		**2**	**B1** for a correct quadratic curve for the given domain, starting from the origin. **B1** for $\left(4,\ 0\right)$ and no other *x*- intercept
9(d)(i)	$18t-36$	**B1**	

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Question	Answer	Marks	Guidance
9(d)(ii)		**2**	**B1** for a correctly positioned straight line graph for the given domain. **Dep B1** for $(0,-36)$ and $(2,\ 0)$
10(a)	$\cos^4\theta-\sin^4\theta=$ $\left(\cos^2\theta-\sin^2\theta\right)\left(\cos^2\theta+\sin^2\theta\right)$ soi	**B1**	
	$\cos^2\theta-\sin^2\theta+1$	**M1**	Must show sufficient detail to show the given result.
	$2\cos^2\theta$	**A1**	
	Alternative 1		
	$\cos^4\theta-\left(1-\cos^2\theta\right)^2+1$	**(B1)**	
	$\cos^4\theta-\left(\cos^4\theta-2\cos^2\theta+1\right)+1$	**(M1)**	Must show sufficient detail to show the given result.
	$2\cos^2\theta$	**(A1)**	
	Alternative 2		
	$\left(1-\sin^2\theta\right)^2-\sin^2\theta+1$	**(B1)**	
	$\left(1-2\sin^2\theta+\sin^4\theta\right)-\sin^4\theta+1$ $2-2\sin^2\theta$	**(M1)**	Must show sufficient detail to show the given result.
	$2\cos^2\theta$	**(A1)**	
10(b)	$\cos\left(\frac{\phi}{3}\right)=(\pm)\frac{1}{2}$ soi	**B1**	
	$\phi=-2\pi,\ -\pi,\ \pi,\ 2\pi$	**4**	**M1** for obtaining one correct solution. **A1** for obtaining 2 correct solutions. **A1** for obtaining a third correct solution. **A1** for a fourth correct solution and no extras within the range.

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