Summer 2013R Past Paper	BR www.mystudybro.com Math This resource was created and owned by Pearson Edexcel					athematic	nematics FP1 6667				
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Summer Past Paper	<sup>-</sup> 2013R	www.mystudybro.com This resource was created and owned by Pearson Edexcel	Mathematic	<b>cs FP</b> 666
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1.	The complex	x numbers z and w are given by		blank
	· · · · · · · · · · · · · · · · ·			
		$z = 8 + 3\mathbf{i},  w = -2\mathbf{i}$		
	Express in th	the form $a + bi$ , where a and b are real constants.		
	I			
	(a) $z - w$ ,		(1)	
			(1)	
	(b) <i>zw</i> .			
			(2)	
—				
—				

Question Number	Scheme	Mark	KS
1.	$z = 8 + 3\mathbf{i},  w = -2\mathbf{i}$		
(a)	$z - w \{= (8 + 3i) - (-2i)\} = 8 + 5i$ 8 + 5i	B1	[1]
(b)	$zw \left\{ = (8+3i)(-2i) \right\} = 6-16i$ Either the real or imaginary part is correct. 6-16i	M1 A1	[1]
			3

## **Mathematics FP1**

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**2.** (i)

 $\mathbf{A} = \begin{pmatrix} 2k+1 & k \\ -3 & -5 \end{pmatrix}, \text{ where } k \text{ is a constant}$ 

Given that

## $\mathbf{B} = \mathbf{A} + 3\mathbf{I}$

where I is the  $2 \times 2$  identity matrix, find

(a) **B** in terms of k,

- (b) the value of k for which **B** is singular.
- (ii) Given that

 $\mathbf{C} = \begin{pmatrix} 2 \\ -3 \\ 4 \end{pmatrix}, \quad \mathbf{D} = (2 \ -1 \ 5)$ 

and

 $\mathbf{E} = \mathbf{C}\mathbf{D}$ 

find E.

(2)

(2)

(2)



Question Number	Scheme	Marks
2.	$\mathbf{A} = \begin{pmatrix} 2k+1 & k \\ -3 & -5 \end{pmatrix},  \mathbf{B} = \mathbf{A} + 3\mathbf{I}$	
(i)(a)	$\mathbf{B} = \mathbf{A} + 3\mathbf{I} = \begin{pmatrix} 2k+1 & k \\ -3 & -5 \end{pmatrix} + 3 \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ For applying $\mathbf{A} + 3\mathbf{I}$ . Can be implied by three out of four correct elements in candidate's final answer. Solution must come from addition.	M1
	$= \begin{pmatrix} 2k+4 & k \\ -3 & -2 \end{pmatrix}$ Correct answer.	A1 [2]
(b)	<b>B</b> is singular $\Rightarrow \det \mathbf{B} = 0$ .	
	-2(2k+4) - (-3k) = 0 Applies "ad - bc" to <b>B</b> and equates to 0	M1
	-4k - 8 + 3k = 0	
	k = -8	A1cao
(ii)	$\mathbf{C} = \begin{pmatrix} 2 \\ -3 \\ 4 \end{pmatrix},  \mathbf{D} = \begin{pmatrix} 2 & -1 & 5 \end{pmatrix},  \mathbf{E} = \mathbf{C}  \mathbf{D}$	
	$\begin{bmatrix} 2 \\ 2 \end{bmatrix} \begin{pmatrix} 4 & -2 & 10 \\ 5 & -2 & 15 \end{bmatrix}$ Candidate writes down a 3×3 matrix.	M1
	$\mathbf{E} = \begin{bmatrix} -3\\4 \end{bmatrix} \begin{pmatrix} 2 & -1 & 5 \end{pmatrix} = \begin{bmatrix} -6 & 3 & -15\\8 & -4 & 20 \end{bmatrix}$ Correct answer.	A1
		[2] 6

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 $f(x) = \frac{1}{2}x^4 - x^3 + x - 3$ 3. (a) Show that the equation f(x) = 0 has a root  $\alpha$  between x = 2 and x = 2.5(2) (b) Starting with the interval [2, 2.5] use interval bisection twice to find an interval of width 0.125 which contains  $\alpha$ . (3) The equation f(x) = 0 has a root  $\beta$  in the interval [-2, -1]. (c) Taking -1.5 as a first approximation to  $\beta$ , apply the Newton-Raphson process once to f(x) to obtain a second approximation to  $\beta$ . Give your answer to 2 decimal places. (5) 8 2 8 2 8 A 0 8 3

Question Number	Scheme		Marks
3.	$f(x) = \frac{1}{2}x^4 - x^3 + x - 3$		
(a)	f(2) = -1 f(2.5) = 3.40625	Either any one of $f(2) = -1$ or f(2.5) = awrt 3.4	M1
	Sign change (and $f(x)$ is continuous) therefore a root $\alpha$ exists between $x = 2$ and $x = 2.5$	both values correct, sign change and conclusion	A1
			[2]
(b)	$f(2.25) = 0.673828125 \left\{ = \frac{345}{512} \right\} \ \left\{ \Rightarrow 2 \leqslant \alpha \leqslant 2.25 \right\}$	$f(2.25) = awrt \ 0.7$	B1
		Attempt to find $f(2.125)$	M1
	f(2.125) = -0.2752685547	f(2.125) = awrt - 0.3 with	
	$\Rightarrow 2.125 \leqslant \alpha \leqslant 2.25$	$2.125 \leqslant \alpha \leqslant 2.25$ or $2.125 < \alpha < 2.25$ or $[2.125, 2.25]$ or $(2.125, 2.25)$	A1
		01 [2.123, 2.23] 01 (2.123, 2.23).	[3]
(c)	$f'(x) = 2x^3 - 3x^2 + 1\{+0\}$	At least two of the four terms differentiated correctly. Correct derivative.	M1 A1
	$f(-1.5) = 1.40625 (= 1\frac{13}{32})$	f(-1.5) = awrt 1.41	B1
	$\{f'(-1.5) = -12.5\}$		
	$\beta_2 = -1.5 - \left(\frac{"1.40625"}{"-12.5"}\right)$	Correct application of Newton-Raphson using their values.	M1
	$= -1.3875  (= -1\frac{31}{80})$	-1.3875 seen as answer to first iteration, award M1A1B1M1	
	= -1.39 (2 dp)	-1.39	A1 cao [5]

Paper	This resource was created and owned by Pearson Edexcel	Wathematic
4.	$f(x) = (4x^2 + 9)(x^2 - 2x + 5)$	
(a) Find	d the four roots of $f(x) = 0$	
		(4)
(b) Sho	w the four roots of $f(x) = 0$ on a single Argand diagram.	
		(2)

P 4 2 8 2 8 A 0 1 2 3 6

Question	Scheme		Marks
Number			
4.	$f(x) = (4x^2 + 9)(x^2 - 2x + 5) = 0$	An attempt to	
(a)	$(4x^2 + 9) = 0 \implies x = \frac{3i}{2}, -\frac{3i}{2}$	solve $(4x^2 + 9) = 0$ which	M1
	2 2	involves i. $\frac{3i}{2}, -\frac{3i}{2}$	A1
	$(x^{2} - 2x + 5) = 0 \implies x = \frac{2 \pm \sqrt{4 - 4(1)(5)}}{2(1)}$	Solves the 3TQ	M1
	$\Rightarrow x = \frac{2 \pm \sqrt{-16}}{2}$		
	$\Rightarrow x = 1 \pm 2i$	1 ± 2i	A1
(b)		Any two of their roots	
	у <b>ф</b>	plotted correctly on a	
	•	single	B1ft
		which have	
		been found in part (a).	
	O $x$	Both sets of their roots	
	•	plotted	
	•	single diagram with	B1ft
		symmetry about $y = 0$ .	
		, in the second s	[2]
	Method mark for solving 3 term quadratic:		U
	1. <u>Factorisation</u> $(x^2 + bx + c) = (x + p)(x + q)$ , where $ pq  =  c $ , leading to x =		
	$(ax^2 + bx + c) = (mx + p)(nx + q)$ , where $ pq  =  c $ and $ mn  =  a $ , leading to x =		
	2. <u>Formula</u> Attempt to use <u>correct</u> formula (with values for $a, b$ and $c$ ).		
	3. <u>Completing the square</u>		
	Solving $x^2 + bx + c = 0$ : $\left(x \pm \frac{b}{2}\right)^2 \pm q \pm c$ , $q \neq 0$ , leading to $x =$		





Question Number	Scheme		Marks
	Ignore part labels and mark part (	a) and part (b) together	
5.	$H: x = 3t, y = \frac{5}{t}, L: 6y = 4x - 15$		
		An attempt to substitute	
(a)	$H = L \implies 6\left(\frac{3}{t}\right) = 4(3t) - 15$	$x = 3t$ and $y = \frac{3}{t}$ into L	MIAI
		Correct equation in <i>t</i> .	
	$\Rightarrow 18 = 12t^2 - 15t \Rightarrow 12t^2 - 15t - 18 = 0$		
	$\Rightarrow 4t^2 - 5t - 6 = 0 *$	Correct solution only, involving at least one intermediate step to given answer.	A1 cso [3]
(b)	(t-2)(4t+3) = 0	A valid attempt at solving the quadratic.	M1
	$\Rightarrow t = 2, -\frac{3}{4}$	Both $t = 2$ and $t = -\frac{3}{4}$	A1
	When $t = 2$ ,	An attempt to use one of their <i>t</i> -values to find one of either r or y	M1
	$x = 3(2) = 6, \ y = \frac{3}{2} \implies \left(6, \frac{3}{2}\right)$	One set of coordinates correct	
	When $t = -\frac{3}{4}$ ,	or both <i>x</i> -values are correct.	Al
	$x = 3\left(-\frac{3}{4}\right) = -\frac{9}{4}, \ y = \frac{3}{\left(-\frac{3}{4}\right)} = -4 \implies \left(-\frac{9}{4}, -4\right)$	Both sets of values correct.	A1
			[5] 8
(b)	<b><u>Alt Method:</u></b> An attempt to eliminate either <i>x</i> or <i>y</i> from 1 <sup>st</sup> M1: A full method to obtain a quadratic equation in 1 <sup>st</sup> A1: For either $4x^2 - 15x - 54 = 0$ or $6y^2 + 15y + 2^{nd}$ M1: A valid attempt at solving the quadratic. 2 <sup>nd</sup> A1: For either $x = 6, -\frac{9}{4}$ or $y = \frac{3}{2}, -4$ 3 <sup>rd</sup> A1: Both $\left(6, \frac{3}{2}\right)$ and $\left(-\frac{9}{4}, -4\right)$ .	xy = 9  and  6y = 4x - 15 n either x or y. -36 = 0  or equivalent.	

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Leave blank  $\mathbf{A} = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}, \quad \mathbf{B} = \begin{pmatrix} 2 & 3 \\ 1 & 4 \end{pmatrix}$ 6. The transformation represented by **B** followed by the transformation represented by **A** is equivalent to the transformation represented by P. (a) Find the matrix **P**. (2) Triangle T is transformed to the triangle T' by the transformation represented by **P**. Given that the area of triangle T' is 24 square units, (b) find the area of triangle *T*. (3) Triangle T' is transformed to the original triangle T by the matrix represented by **Q**. (c) Find the matrix **Q**. (2) 18 P 4 2 8 2 8 A 0 1 8 3 6

Question Number	Scheme	Mar	ks
6.	$\mathbf{A} = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}, \ \mathbf{B} = \begin{pmatrix} 2 & 3 \\ 1 & 4 \end{pmatrix}$		
(a)	$\mathbf{P} = \mathbf{A}\mathbf{B} \left\{ = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix} \begin{pmatrix} 2 & 3 \\ 1 & 4 \end{pmatrix} \right\} \qquad \qquad \mathbf{P} = \mathbf{A}\mathbf{B} \text{, seen or implied.}$	M1	
	$\mathbf{P} = \begin{pmatrix} 1 & 4 \\ -2 & -3 \end{pmatrix}$ Correct answer.	A1	[2]
(b)	det $\mathbf{P} = 1(-3) - (4)(-2) \{= -3 + 8 = 5\}$ Applies " <i>ad</i> - <i>bc</i> ".	M1	
	Area $(T) = \frac{24}{5}$ (units) <sup>2</sup> $\frac{24}{\text{their det } \mathbf{P}}$ , dependent on previous M $\frac{24}{5}$ or $\frac{24}{5}$ or $\frac{4.8}{5}$	dM1 A1ft	[3]
(c)	$\mathbf{QP} = \mathbf{I} \implies \mathbf{QPP}^{\cdot 1} = \mathbf{IP}^{\cdot 1} \implies \mathbf{Q} = \mathbf{P}^{\cdot 1}$		
	$\mathbf{Q} = \mathbf{P}^{-1} = \frac{1}{5} \begin{pmatrix} -3 & -4 \\ 2 & 1 \end{pmatrix}$ $\mathbf{Q} = \mathbf{P}^{-1} \text{ stated or an attempt to find } \mathbf{P}^{-1}.$ Correct ft inverse matrix.	M1 A1ft	[2] 7
	Using <b>BA</b> , area is the same in (b) and inverse is $\frac{1}{5}\begin{pmatrix} 1 & -2 \\ 4 & -3 \end{pmatrix}$ in (c) and could gain ft marks.		

<b>Summe</b> Past Paper	r 2013R www.mystudybro.com This resource was created and owned by Pearson Edexce	Mathematics FP 666
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7.	The parabola <i>C</i> has equation $y^2 = 4ax$ , where <i>a</i> is a positive constant.	
	The point $P(at^2, 2at)$ is a general point on <i>C</i> .	
	(a) Show that the equation of the tangent to <i>C</i> at $P(at^2, 2at)$ is	
	$ty = x + at^2$	(4)
	The tangent to $C$ at $P$ meets the y-axis at a point $Q$ .	
	(b) Find the coordinates of $Q$ .	(1)
	Given that the point $S$ is the focus of $C$ ,	
	(c) show that $PQ$ is perpendicular to $SQ$ .	(3)
$\Box$		

Question Number	Scheme		Marks
7.	$y^2 = 4ax$ , at $P(at^2, 2at)$ .		
(a)	$y = 2\sqrt{a} x^{\frac{1}{2}} \Rightarrow \frac{dy}{dx} = \sqrt{a} x^{-\frac{1}{2}}$ or (implicitly) $2y \frac{dy}{dx} = 4a$ or (chain rule) $\frac{dy}{dx} = 2a \times \frac{1}{2at}$	$\frac{dy}{dx} = \pm k x^{-\frac{1}{2}}$ or $k y \frac{dy}{dx} = c$ or $\frac{\text{their } \frac{dy}{dt}}{\text{their } \frac{dx}{dt}}$	M1
	When $x = at^2$ , $\frac{dy}{dx} = \frac{\sqrt{a}}{\sqrt{at^2}} = \frac{\sqrt{a}}{\sqrt{at}} = \frac{1}{t}$ or $\frac{dy}{dx} = \frac{4a}{2(2at)} = \frac{1}{t}$	$\frac{\mathrm{d}y}{\mathrm{d}x} = \frac{1}{t}$	A1
	<b>T</b> : $y - 2at = \frac{1}{t}(x - at^2)$	Applies $y - 2at$ = their $m_T(x - at^2)$ Their $m_T$ must be a function of $t$ from calculus.	M1
	$\mathbf{T}: ty - 2at^2 = x - at^2$		
	<b>T</b> : $ty = x + at^2$	Correct solution.	A1 cso * [4]
(b)	At $Q$ , $x = 0 \Rightarrow y = \frac{at^2}{t} = at \Rightarrow Q(0, at)$	y = at or $Q(0, at)$	B1 [1]
(c)	S(a,0)		
	$m(PQ) = \frac{at - 2at}{0 - at^2} = \frac{-at}{-at^2} = \frac{1}{t}$	A correct method for finding either $m(PQ)$ or $m(SQ)$ for their Q or S.	M1
	$m(SQ) = \frac{at - 0}{0 - a} = \frac{at}{-a} = -t$	$m(PQ) = \frac{1}{t}$ and $m(SQ) = -t$	A1
	$m(PQ) \times m(SQ) = \frac{1}{t} \times -t = -1 \implies PQ \perp SQ$	Shows $m(PQ) \times m(SQ) = -1$ and conclusion.	A1 cso [3] 8

## **Mathematics FP1**

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8. (a) Prove by induction, that for  $n \in \mathbb{Z}^+$ ,

$$\sum_{r=1}^{n} r(2r-1) = \frac{1}{6}n(n+1)(4n-1)$$

(6)

(b) Hence, show that

$$\sum_{r=n+1}^{3n} r(2r-1) = \frac{1}{3}n(an^2 + bn + c)$$

where a, b and c are integers to be found.

(4)



Question Number	Scheme		Marks
<b>8.</b> (a)	$\sum_{r=1}^{n} r(2r-1) = \frac{1}{6}n(n+1)(4n-1)$ $n=1;$ LHS = $\sum_{r=1}^{1} r(2r-1) = 1$ RHS = $\frac{1}{6}(1)(2)(3) = 1$ As LHS = RHS, the summation formula is true for $n = 1$ . Assume that the summation formula is true for $n = k$ . i.e. $\sum_{r=1}^{k} r(2r-1) = \frac{1}{6}k(k+1)(4k-1)$ .	$\frac{1}{6}(1)(2)(3) = 1$ seen	B1
	With $n = k+1$ terms the summation formula becomes: $\sum_{r=1}^{k+1} r(2r-1) = \frac{1}{6}k(k+1)(4k-1) + (k+1)(2(k+1)-1)$ $= \frac{1}{6}k(k+1)(4k-1) + (k+1)(2k+1)$	$S_{k+1} = S_k + u_{k+1}$ with $S_k = \frac{1}{6}k(k+1)(4k-1).$	M1
	$= \frac{1}{6}(k+1)(k(4k-1) + 6(2k+1))$	Factorise by $\frac{1}{6}(k+1)$	dM1
	$= \frac{1}{6}(k+1)(4k^2 + 11k + 6)$	$(4k^2 + 11k + 6)$ or equivalent quadratic seen	A1
	$= \frac{1}{6}(k+1)(k+2)(4k+3)$		
	$= \frac{1}{6}(k+1)(k+1+1)(4(k+1)-1)$	Correct completion to $S_{k+1}$ in terms of $k+1$ dependent on both Ms.	dM1
	If the summation formula is <u>true for</u> $n = k$ , then it is shown to be <u>true for</u> $n = k+1$ . As the result is <u>true for</u> $n = 1$ , it is now also <u>true for all</u> $n$ and $n \in \mathbb{Z}^+$ by mathematical induction.	Conclusion with all 4 underlined elements that can be seen anywhere in the solution	A1 cso [6]

Question Number	Scheme	Marks
<b>8.</b> (b)	$\sum_{r=n+1}^{3n} r(2r-1) = \mathbf{S}_{3n} - \mathbf{S}_n$	
	$= \frac{1}{6} \cdot 3n(3n+1)(12n-1) - \frac{1}{6}n(n+1)(4n-1)$ Use of $S_{3n} - S_n$ or $S_{3n} - S_{n+1}$ with the result from (a) used at least once. Correct un-simplified expression.	M1 A1
	$= \frac{1}{6}n\{3(3n+1)(12n-1) - (n+1)(4n-1)\}$	
	$= \frac{1}{6}n\left\{3(36n^2 + 9n - 1) - (4n^2 + 3n - 1)\right\}$ Factorises out $\frac{1}{6}n$ or $\frac{1}{3}n$ and an attempt to open up the brackets.	dM1
	$= \frac{1}{6}n\left\{108n^2 + 27n - 3 - 4n^2 - 3n + 1\right\}$	
	$= \frac{1}{6}n\{104n^2 + 24n - 2\}$	
	$= \frac{1}{3}n(52n^2 + 12n - 1) = \frac{1}{3}n(52n^2 + 12n - 1)$	A1
	$\{a = 52, b = 12, c = -1\}$	[4] 10

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Summer 2013R www.mystudybro.com This resource was created and owned by Pearson Edexcel Past Paper Leave blank The complex number w is given by 9. w = 10 - 5i(a) Find |w|. (1) (b) Find arg w, giving your answer in radians to 2 decimal places. (2) The complex numbers z and w satisfy the equation (2 + i)(z + 3i) = w(c) Use algebra to find z, giving your answer in the form a + bi, where *a* and *b* are real numbers. (4) Given that  $\arg(\lambda + 9i + w) = \frac{\pi}{4}$ where  $\lambda$  is a real constant, (d) find the value of  $\lambda$ . (2)



Question Number	Scheme		
9.	w = 10 - 5i		
(a)	$ w  = \left\{\sqrt{10^2 + (-5)^2}\right\} = \sqrt{125} \text{ or } 5\sqrt{5} \text{ or } 11.1803$	$\sqrt{125}$ or $5\sqrt{5}$ or <u>awrt 11.2</u>	B1
(b)	$\arg w = -\tan^{-1}\left(\frac{5}{10}\right)$	Use of tan <sup>-1</sup> or tan	[1] M1
	= -0.463647609 = -0.46 (2 dp)	awrt -0.46 or awrt 5.82	A1 oe [2]
(c)	(2 + i)(z + 3i) = w $z + 3i = \frac{10 - 5i}{(2 + i)}$	Simplifies to give $* = \frac{\text{complex no.}}{(2 + i)}$	B1
	$z + 3i = \frac{(10 - 5i)}{(2 + i)} \times \frac{(2 - i)}{(2 - i)}$	Multiplies by $\frac{\text{their } (2-i)}{\text{their } (2-i)}$	M1
	$z + 3i = \frac{20 - 10i - 10i - 5}{1 + 4}$	Simplifies realising that a real number is needed on the denominator and applies $i^2 = -1$ on their numerator expression	M1
	$z + 3i = \frac{15 - 20i}{5}$		
	z + 3i = 3 - 4i z = 3 - 7i (Note: $a = 3, b = -7.$ )	z = 3 - 7i	A1 [ <b>4</b> ]
(b)	$\arg(\lambda + 9\mathbf{i} + w) = \frac{\pi}{4}$ $\lambda + 9\mathbf{i} + w = \lambda + 9\mathbf{i} + 10 - 5\mathbf{i} = (\lambda + 10) + 4\mathbf{i}$		
	$\arg(\lambda + 9i + w) = \frac{\pi}{4} \Longrightarrow \lambda + 10 = 4$	Combines real and imaginary parts and puts "Real part = Imaginary part" i.e. $\frac{\lambda + 10}{2} = 1$ or $\frac{4}{2} = 1$ o.e.	M1
	So, $\lambda = -6$	4 $\lambda + 10$ -6	A1 [2] 9
(c)	<u>Alt 1: Scheme as above:</u> $(2 + i)_7 + 6i + 3i^2 - 10 - 5i \rightarrow (2 + i)_7 - 13 - 11i$		
	$\begin{array}{c} (2+i)z + 6i + 5i = 10 - 5i = 2(2+i)z = 13 - 11i \\ B1 \text{ for } z = \frac{13 - 11i}{2 + i}; \text{ M1 for } z = \frac{(13 - 11i)}{(2 + i)} \times \frac{(2 - i)}{(2 - i)}; \text{ M1 for } z = \frac{26 - 13i - 22i - 11}{4 + 1}; \end{array}$		
(c)	A1 for $z = 3 - 7i$ <u>Alt 2:</u> Let $z = a + ib$ gives $(2+i)(a+ib+3i) = 10-5i$ for B1 Equating real and imaginary parts to form two equations both involving <i>a</i> and <i>b</i> for M1 Solves simultaneous equations as far as $a = $ or $b = $ for M1 a=3, b=-7 or $z = 3-7i$ for A1		

## **Mathematics FP1**





Question Number	Scheme	Marks	5
<b>10.</b> (i)	$\sum_{r=1}^{24} (r^3 - 4r)$ $= \frac{1}{4} 24^2 (24+1)^2 - 4 \cdot \frac{1}{2} 24 (24+1)$ $\{= 90000 - 1200\}$ $= 88800$ An attempt standar	to use at least one of the d formulae correctly and substitute 24. 88800 A1 cao	[2]
(ii)	$\sum_{r=0}^{n} (r^{2} - 2r + 2n + 1)$ An attempt stan $= \frac{1}{6} n(n+1)(2n+1) - 2 \cdot \frac{1}{2} n(n+1) + 2n(n+1) + (n+1)$ An attempt stan <u>Correct</u> $= \frac{1}{6} (n+1) \{ 2n^{2} + n - 6n + 12n + 6 \}$ An attempt stan <u>Correct</u> An attempt stan <u>Correct</u> An attempt stan <u>Correct</u> An attempt stan <u>Correct</u> An attempt stan <u>Correct</u> An attempt stan <u>Correct</u> An attempt stan <u>Correct</u> An attempt <u>Stan</u> <u>Correct</u> An attempt <u>Stan</u> <u>Correct</u> An attempt <u>Stan</u> <u>Correct</u> An attempt <u>Stan</u> <u>Correct</u> An attempt <u>Stan</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correct</u> <u>Correc</u>	to use at least one of the dard formulae correctly. <u>ct underlined expression.</u> $2n \rightarrow 2n(n+1)$ $1 \rightarrow (n+1)$ n attempt to factorise out $\frac{1}{6}(n+1)$ or $\frac{1}{6}n$ . M1 M1	
	$= \frac{1}{6}(n+1)\{2n^{2} + 7n + 6\}$ $= \frac{1}{6}(n+1)(n+2)(2n+3)$ (No	Correct answer. te: $a = 2, b = 2, c = 3.$ ) A1	[6] 8