Question	Answer	Marks	Partial marks
4	$(2+ax)^5 = 2^5 + 5\times 2^4 ax + 10\times 2^3 a^2x^2 + ...$	**B1**	
	$(2+ax)^5(1+bx) =$ $32 + 80ax + 80a^2x^2 + 32bx + 80abx^2...$	**M1**	
	$80a + 32b = 112$ oe, isw	**A1**	
	$80a^2 + 80ab = -240$ oe, isw	**A1**	
	$3a^2 - 7a - 6 = 0$ oe	**M1**	
	$(3a + 2)(a - 3) = 0$	**M1**	
	$a = 3$ and $b = -4$ and no other values	**A1**	
5	$[m_{\text{tangent}} =] -2px^{-3} + 5$ oe	**B1**	
	[When $x = 1$, $m_{\text{normal}} =$] $\frac{-1}{-2p+5}$ or gradient of tangent = 1 nfww	**B1**	**FT** $\frac{-1}{their \left.\frac{dy}{dx}\right\|_{x=1}}$ if appropriate
	$\frac{-1}{their(-2p+5)} = -1$ oe or *their*$(-2p + 5) = 1$	**M1**	**FT** $\frac{-1}{their \left.\frac{dy}{dx}\right\|_{x=1}}$ or *their* $\left.\frac{dy}{dx}\right\|_{x=1}$ and *their* evaluation of $\frac{-1}{-1}$
	$p = 2$ nfww	**A1**	
	[When $x = 1$] *their* $5 = -1 + q$ or $y = -x + 6$	**M1**	**FT** $y =$ (*their p*) + 3 providing at least 2 of the first 3 marks awarded
	$q = 6$ nfww	**A1**	
6	$ax^2 - 5x + 2 = 2ax + x - 10$	**M1**	
	$ax^2 - (2a+6)x + 12[=0]$ oe	**A1**	
	Correct use of $b^2 - 4ac$ [*0]: $(-(2a + 6))^2 - 4(a)(12)$ [*0] oe	**M1**	where * is any inequality sign or =; **FT** *their* 3-term quadratic in x and a
	$4a^2 - 24a + 36$ [*0]	**A1**	
	Factorises or solves *their* 3-term quadratic in a	**M1**	**FT** *their* 3-term quadratic in a
	$a = 3$	**A1**	