1	$y = 5x - 4$ www	3	M2 for $\dfrac{y-11}{-9-11} = \dfrac{x-3}{-1-3}$ o. or M1 for grad $= \dfrac{11-(-9)}{3-(-1)}$ or 5 eg in y $= 5x + k$ and M1 for $y - 11 =$ their $m(x - 3)$ o.e. or subst (3, 11) or −1, −9) in $y =$ their $mx + c$ or M1 for $y = kx - 4$ (eg may be found by drawing)	3

2	(i) (0, 4) and (6, 0)	2	1 each; allow $x = 0$, $y = 4$ etc; condone $x = 6$, $y = 4$ isw but 0 for (6, 4) with no working	
	(ii) −4/6 o.e. or ft their (i) isw	2	1 for $-\frac{4}{6}x$ or 4/−6 or 4/6 o.e. or ft (accept 0.67 or better) 0 for just rearranging to $y = -\frac{2}{3}x + 4$	4

3			3	mark final answer; 1 for $a = 3$, 2 for $b = 7$ or M1 for $-3^2 + 2$; bod 3 for $(x - 3) - 7$	3
	ii		1+1		2
	iii		G1	accept (0, 2) o.e. seen in this part [eg in table] if 2 not marked as intercept on graph	
			G1	accept 3 and -7 marked on axes level with turning pt., or better; no ft for (0, 2) as min	2
	iv		M1	or their (i) = $2x - 14$	
			M1	dep on first M1; condone one error	
			M1	or correct use of formula, giving equal roots; allow $(x + 4)^2$ o.e. ft $x^2 + 8x + 16$	
			A1	if M0M0M0, allow SC2 for showing (4, −6) is on both graphs (need to go on to show line is tgt to earn more)	
			A1	or for use of calculus to show grad of line and curve are same when $x = 4$	
					5	12

4	$6x + 2(2x − 5) = 7$	M1	for subst or multn of eqns so one pair of coeffts equal (condone one error)	
	$10x = 17$	M1	simplification (condone one error) or appropriate addn/subtn to eliminate variable	
	$x = 1.7$ o.e. isw	A1	allow as separate or coordinates as requested	
	$y = −1.6$ o.e .isw	A1		
			graphical soln: M0	4

5	(i) −4/5 or −0.8 o.e.	2	M1 for 4/5 or 4/−5 or 0.8 or −4.8/6 or correct method using two points on the line (at least one correct) (may be graphical) or for −0.8x o.e.	
	(ii) (15, 0) or 15 found	3	M1 for $y =$ their (i) $x + 12$ o.e. or $4x + 5y = k$ and (0, 12) subst and M1 for using $y = 0$ eg $−12 = −0.8x$ or ft their eqn	
			<u>or</u> M1 for given line goes through (0, 4.8) and (6, 0) and M1 for 6 × 12/4.8 graphical soln: allow M1 for correct required line drawn and M1 for answer within 2mm of (15, 0)	5

6		correct graph with clear asymptote $x = 2$ (though need not be marked)	G2	G1 for one branch correct; condone $(0, -½)$ not shown SC1 for both sections of graph shifted two to left		
			G1	allow seen calculated	3	
		$(0, -½)$ shown				
	ii	11/5 or 2.2 o.e. isw	2	M1 for correct first step	2	
	iii	$x = \dfrac{1}{x-2}$	M1	or equivs with ys		
		$x(x-2) = 1$ o.e. $x^2 - 2x - 1\ [= 0]$; ft their equiv eqn attempt at quadratic formula $1 \pm\sqrt{2}$ cao position of points shown	M1 M1 M1 A1 B1	or $(x-1)^2 - 1 = 1$ o.e. or $(x-1) = \pm\sqrt{2}$ (condone one error) on their curve with $y = x$ (line drawn or $y = x$ indicated by both coords); condone intent of diagonal line with gradient approx 1 through origin as $y = x$ if unlabelled	6	11

| 7 | $y = 2x + 4$ | 3 | M1 for $m = 2$ stated [M0 if go on to use $m = -½$]   or M1 for $y = 2x + k$, $k \neq 7$ and M1indep for $y - 10 = m(x - 3)$ or (3, 10) subst $y = mx + c$; allow 3 for $y = 2x + k$ and $k = 4$ | 3 |