01. 0580_m24_ms_22 Q: 9

	$(4,3)$	**2**	**B1** for each or **M1** for $3 = 2x - 5$ or better

02. 0580_m24_ms_22 Q: 26

	$y = \frac{2}{3}x + \frac{4}{3}$ final answer	**5**	**B1** for midpoint $(4,4)$ soi **M1** for [gradient AB =] $\frac{7-1}{2-6}$ oe **M1** for [m =] $\frac{-1}{\textit{their}\text{ gradient of }AB}$ **M1** for substituting *their* midpoint into $y = (\textit{their}\ m)x + c$ dep on at least M1 earned

03. 0580_s24_ms_21 Q: 1

Question	Answer	Marks	Partial Marks
	(–3, 7)	**2**	**B1** for correct diagram or correct coordinates for *their* point D or for $(-3,k)$ or $(k,7)$

04. 0580_s24_ms_22 Q: 14

Question	Answer	Mark	Partial Marks
	$y = \frac{1}{2}x + 2$ oe	**2**	**M1** for $\frac{6-2}{8-0}$ oe or for $y = kx + 2$

05. 0580_s24_ms_22 Q: 18

(a)	tangent ruled at $x = 3$	**1**	

Question	Answer	Mark	Partial Marks
(b)	4.8 to 5.8	**2**	dep on a close attempt at a tangent **M1** for $\frac{\text{rise}}{\text{run}}$ also dep on close attempt at tangent

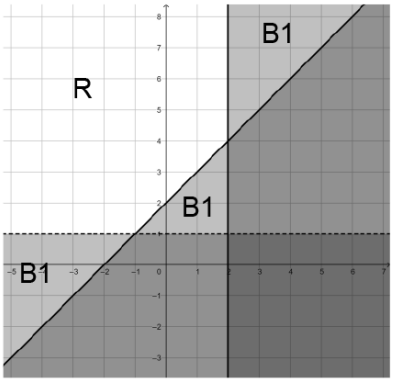
06. 0580_s24_ms_23 Q: 10

	$-\frac{6}{5}$ oe	**2**	**M1** for $\frac{1-7}{3--2}$ oe

07. 0580_s23_ms_22 Q: 15

Question	Answer	Marks	Partial Marks
(a)	(9, 7)	**2**	**B1** for each
(b)	2	**2**	**M1** for $\frac{15--1}{13-5}$ oe
(c)	$[y =] -\frac{1}{2}x + \frac{23}{2}$ oe final answer	**3**	**M1** for gradient = $-\frac{1}{\textit{their}\ \textbf{(b)}}$ oe **M1** for correct substitution of *their* **(a)** into $y = (\textit{their}\ m)x + c$ oe

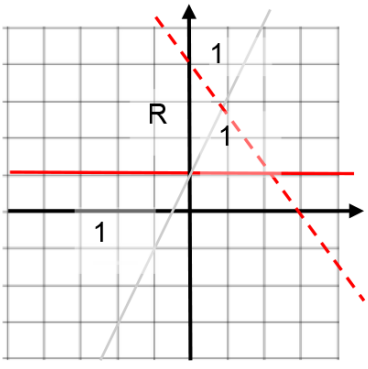
08. 0580_w23_ms_21 Q: 15

Question	Answer	Marks	Partial Marks
		5	**B1** for $y = 1$ dashed line **B1** for $x = 2$ solid line **B1** for $y = x + 2$ solid line **B2** for region identified satisfying all 3 inequalities or **B1** for region identified satisfying only 2 of these inequalities with $y = 1$, $x = 2$ and $y = x + 2$ all drawn

09. 0580_w23_ms_22 Q: 21

Question	Answer	Marks	Partial Marks
	(2, 3) and (–2, –1)	4	**B3** for $x = 2$ and $x = -2$ or **B2** for $x^2 - 4[=0]$ or better or for (2, 3) or (–2, –1) or **M1** for $x + 1 = x^2 + x - 3$ oe

10. 0580_w23_ms_23 Q: 13

Question	Answer	Marks	Partial Marks
	Correct region indicated 	4	**B1** for $4x + 3y = 12$ dashed line **B1** for $y = 1$ solid line **B2** for region identified satisfying all 3 inequalities or **B1** for region satisfying only 2 of these inequalities with $4x + 3y = 12$ and $y = 1$ both drawn

11. 0580_w23_ms_23 Q: 22

Question	Answer	Marks	Partial Marks
	$x^2 - 4x + 4$ [= 0]	**M2**	**M1** for $9 - 4x = 5 - x^2$ oe
	$(x - 2)(x - 2)$	**M1**	Accept alt methods e.g. use of formula, complete the square for *their* 3 – term quadratic equation
	(2, 1)	**B2**	**B1** for $x = 2$

12. 0580_m22_ms_22 Q: 5

Question	Answer	Marks	Partial Marks
(a)	5	**1**	
(b)	(0, 7)	**1**	

13. 0580_m22_ms_22 Q: 16

Question	Answer	Marks	Partial Marks
(a)	$[y =] -2x - 7$ final answer	**2**	**B1** for $-2x + c$ or $kx - 7$, $k \neq 0$ final answer
(b)	$y = \frac{1}{2}x[\pm 0]$ final answer	**2**	**FT** $-\frac{1}{\textit{their gradient in}\ \textbf{(a)}}$ **B1** for $y = kx[\pm 0]$ oe, $k \neq 0$ or $y = \textit{their}\frac{1}{2}x + c$ oe for any c or $\textit{their}\frac{1}{2}x\ [\pm 0]$ oe

14. 0580_w22_ms_23 Q: 8

Question	Answer	Marks	Partial Marks
	(1, 3.5)	**2**	**B1** for each

15. 0580_w22_ms_23 Q: 16

Question	Answer	Marks	Partial Marks
	$[y =] -\frac{1}{4}x - \frac{11}{2}$ oe	3	**M1** for grad $= -\frac{1}{4}$ oe soi **M1** for correct substitution shown of (–2, –5) into $y = (\textit{their } m)x + c$ oe ($\textit{their } m \neq 4$)

16. 0580_s21_ms_21 Q: 9

Question	Answer	Marks	Partial Marks
(a)	(7, – 1)	2	**B1** for each
(b)	8.94 or 8.944…	3	**M2** for $\sqrt{(9-5)^2 + (3--5)^2}$ oe or **M1** for $(9-5)^2 + (3--5)^2$ oe

17. 0580_s21_ms_21 Q: 16

Question	Answer	Marks	Partial Marks
	4 or 0.75		or **B1** for answer $\frac{3}{4}$ oe
(b)	$[y =] -\frac{3}{4}x + 2$ oe	2	**FT** $[y =] \textit{their}$ **(a)** $x + 2$ oe **B1** for $[y =] \textit{their}$ **(a)** $x + c$ or $[y =] mx + 2$.
(c)	$[y =] \frac{4}{3}x - 23$ oe	3	**M1** for gradient $\frac{-1}{\textit{their}}$ **(a)** **M1** for (12, – 7) substituted into $y = \textit{their } mx + c$

18. 0580_s21_ms_22 Q: 16

Question	Answer	Marks	Partial Marks
(a)	8.94 or 8.944…	3	**M2** for $\sqrt{(9-5)^2+(-1-7)^2}$ oe or **M1** for $(9-5)^2+(-1-7)^2$ oe
(b)	$y = -2x + 17$ oe final answer	3	**B2** for answer $-2x + 17$ OR **M1** for $\frac{-1-7}{9-5}$ oe **M1** for correct substitution of (5, 7) or (9, –1) into $y = mx + c$ oe

19. 0580_s21_ms_22 Q: 17

Question	Answer	Marks	Partial Marks
	$-\frac{3}{4}$ or – 0.75	2	**M1** for $y=\frac{4x-5}{3}$ or better or for $\frac{-1}{\textit{their gradient}}$

20. 0580_w21_ms_21 Q: 11

Question	Answer	Marks	Partial Marks
	$y = \frac{1}{5}x+6$ oe final answer	3	**B2** for $y = \frac{1}{5}x + c$ oe or $\frac{1}{5}x + 6$ oe or $y = mx + 6$ oe or **B1** for [gradient =] $\frac{1}{5}$ oe or $mx + 6$

21. 0580_w21_ms_22 Q: 15

Question	Answer	Marks	Partial Marks
(a)	[y =] $3x + 7$ final answer	**3**	**M1** for $\frac{31-16}{8-3}$. oe **M1** for correct substitution of (3, 16) or (8, 31) into $y = (their\ m)x + c$
(b)	–2	**1**	

22. 0580_w21_ms_23 Q: 18

Question	Answer	Marks	Partial Marks
	[y =] $12x - 26$ final answer	**3**	**M1** for $\frac{10--2}{3-2}$ oe **M1** for correct substitution of (2, –2) or (3, 10) into $y = (their\ m)x + c$ oe

23. 0580_m20_ms_22 Q: 17

Question	Answer	Marks	Partial Marks
	[y =] $-\frac{1}{6}x+\frac{11}{2}$ oe	**4**	**M1** for [gradient of AB =] $\frac{5--7}{3-1}$ oe **M1** for [gradient of perpendicular =] $-\frac{1}{their\ \text{grad}\ AB}$ **M1** for substituting (3, 5) in *their* linear equation

24. 0580_s20_ms_21 Q: 20

	Answer	Marks	Partial Marks
	[y =] $5x - 4$	**1**	

25. 0580_w20_ms_21 Q: 14

Question	Answer	Marks	Partial Marks
	2	**2**	**M1** for $y = \frac{5-4x}{8}$ oe or better

26. 0580_w20_ms_22 Q: 24

Question	Answer	Marks	Partial Marks
	(2.4, 1.8) oe	**5**	**M1** for [gradient =] $-1 \div \frac{1}{3}$ oe **M1** for substituting (2, 3) into $y = (\textit{their } m)x + c$ oe **M1** for $\frac{1}{3}x + 1 = \textit{their}(mx + c)$ with *their* $m \neq \frac{1}{3}$ **M1** for substituting *their* x-coord into either equation to find y or for substituting *their* y-coord into either equation to find x

27. 0580_w20_ms_23 Q: 12

Question	Answer	Marks	Partial Marks
(a)	5	**1**	
(b)	$(-\frac{12}{5}$ oe, 0)	**2**	**M1** for $5x + 12 = 0$
(c)	$-\frac{1}{5}$ oe	**1**	**FT** $-\frac{1}{\textit{their}(a)}$

28. 0580_m19_ms_22 Q: 23

	Answer	Mark	Partial Marks
(a)	(4.5, – 1)	**2**	**B1** for each
(b)	$[y =]\frac{5}{8}x+\frac{7}{4}$	**4**	**M1** for $\frac{-5-3}{7-2}$ oe **M1** for –1/ *their* $-\frac{8}{5}$ **M1** for 3 = 2 × *their* gradient + *c* oe

29. 0580_s19_ms_21 Q: 26

	Answer	Mark	Partial Marks
(a)	$y = 2x - 3$ oe	**3**	**B2** for $2x-3$ or $y = theirm\ x - 3$ or $y = 2x + c$ or **M1** for $\frac{9-(-3)}{6-0}$ oe or $9 = 6m - 3$ oe or **B1** for $2x$ seen or $[y =]mx - 3\ m \neq 0$
(b)	$y = -\frac{1}{2}x + 2$ oe	**2**	**FT** *their* **(a)** $y = -\frac{1}{their\ m}x + 2$ **B1** for gradient $-\frac{1}{2}$, gradient **FT** *their* **(a)** or for $y = mx + 2\ m \neq 0$

30. 0580_s19_ms_23 Q: 5

	Answer	Mark	Partial Marks
(a)	(0, –8)	**1**	
(b)	3	**1**	

31. 0580_s19_ms_23 Q: 15

	Answer	Mark	Partial Marks
	13.9 or 13.92 to 13.93	**3**	**M2** for $\sqrt{(7-2)^2+(12--1)^2}$ oe or **M1** for $(7-2)^2+(12--1)^2$ oe

32. 0580_w19_ms_22 Q: 14

	Answer	Mark	Partial Marks
	Gradient = $\frac{5}{4}$ oe	**M1**	**M** marks can be in any order
	$y = k - \frac{4}{5}x$ oe and gradient = $-\frac{4}{5}$ oe	**M1**	
	Use of product of gradients is -1 oe	**M1**	

33. 0580_w19_ms_23 Q: 7

	Answer	Mark	Partial Marks
	$-\frac{2}{5}$ or -0.4	**2**	**M1** for gradient = $\frac{5}{2}$ oe soi

34. 0580_w19_ms_23 Q: 12

	Answer	Mark	Partial Marks
	7.62 or 7.615 to 7.616	**3**	**M2** for $\sqrt{(9-2)^2+(4-1)^2}$ oe or **M1** for $(9-2)^2+(4-1)^2$ oe or 58

35. 0580_w19_ms_23 Q: 13

	Answer	Mark	Partial Marks
	2.75 oe	**3**	**M2** for $6--5=2(3k-k)$ oe or better or **M1** for $\frac{6--5}{3k-k}$ oe If 0 scored, **SC1** for -2.75 oe as answer

36. 0580_s18_ms_21 Q: 24

	Answer	Mark	Partial Marks
(a)	78.7 or 78.69…	3	**M2** for tan = $\frac{5}{2-1}$ oe or **M1** for use of tangent oe
(b)	[y =] $-\frac{1}{3}x+12$ final answer	3	**M1** for gradient = $-\frac{1}{3}$ **M1** for substituting (6, 10) into $y = mx + c$

37. 0580_s18_ms_22 Q: 25

	Answer	Mark	Partial Marks
(a)	[y =] $-\frac{2}{5}x+3$ or [y =] $-0.4x+3$ final answer	4	**B2** for [gradient of perpendicular =] $-\frac{2}{5}$ oe or **M1** for [gradient =] $\frac{24-9}{22-16}$ or $-\frac{22-16}{24-9}$ **M1** for substituting (5, 1) into $y = mx + c$
(b)	(20, 19)	2	**M1** for $\frac{2}{3}(22-16)+16$ or $\frac{2}{3}(24-9)+9$ oe or **SC1** for answer (18, 14)

38. 0580_w18_ms_22 Q: 10

	Answer	Mark	Partial Marks
	$\left(2w, \frac{r+t}{2}\right)$ final answer	2	**B1** for $2w$ oe nfww or $\frac{r+t}{2}$ oe

39. 0580_w18_ms_22 Q: 17

	Answer	Mark	Partial Marks
	$-2x + 5$	4	**M1** for $\frac{7-2}{9--1}$ oe **M1** for gradient of perpendicular = $\frac{-1}{their\ 0.5}$ **M1** for (1, 3) correctly substituted into *their* $y = -2x + c$

40. 0580_m17_ms_22 Q: 20

	Answer	Mark	Partial Marks
(a)	$[y =] -2x + 3$	**3**	**B2** for $[y =] -2x + c$ or **M1** for rise/run and **B1** for $[y =] kx + 3$, $k \neq 0$ or $c = 3$
(b)	$y = \frac{1}{2}x - \frac{5}{2}$ oe final answer	**3**	**M1** for gradient = $-\frac{1}{\textit{their}\text{ gradient in }\textbf{(a)}}$ or gradient = 0.5 oe **M1** for substitution of (3, –1) into *their* $y = mx + c$ oe

41. 0580_s17_ms_21 Q: 12

	Answer	Mark	Partial Marks
	$k - 3$ or $-3 + k$	**3**	**M1** for $5 = \frac{23-8}{k-x}$ oe **M1** for $5(k - x) = 23 - 8$ or better e.g. $[x =] k - \frac{23-8}{5}$

42. 0580_s17_ms_22 Q: 27

	Answer	Mark	Partial Marks
(a)	$y = 2x + 4$	**3**	**B2** for $2x + 4$ or $y = 2x + c$ or $y = mx + 4$ or **B1** for $2x + c$ or for $kx + 4$ or **M1** for rise/run
(b)	$y = -\frac{1}{2}x + \frac{3}{2}$ oe	**4**	**B1** for (–1, 2) **M1** for the gradient $-\frac{1}{2}$ oe or $\frac{-1}{\textit{their}\ 2}$ oe **M1** for substituting *their* (–1, 2) into *their* $y = mx + c$ oe

43. 0580_w17_ms_21 Q: 6

	Answer	Mark	Partial Marks
(a)	(–2, 3)	**1**	
(b)	Correct rhombus with 4th point at (2,2)	**1**	

44. 0580_s16_ms_21 Q: 25

	Answer	Mark	Partial Marks
	$y=-\frac{3}{7}x+11$ oe	6	**B2** for gradient = $-\frac{3}{7}$ **or M1** for [gradient =] $\frac{15-1}{10-4}$ oe **or** for the negative reciprocal of *their* gradient **and** **B2** for [midpoint of *AB* =] (7, 8) or **B1** for (7, *k*) or (*k*, 8) **and M1** for substitution of *their* midpoint or (4, 1) or (10, 15) into a linear equation

45. 0580_s16_ms_23 Q: 18

	Answer	Mark	Partial Marks
(a)	2 cao	**2**	**M1** for rise/run attempted e.g. 4/2 or other correct method for finding gradient or **SC1** for $y = 2x - 1$ as answer
(b)	$y = 2x + 6$ oe	**2FT**	**FT** for $y = \textit{their(a)}x + 6$ **B1** for $y = mx + 6$ ($m \neq 0$ or 2) or $y = 2x$ [+ *k*] or $y = \textit{their(a)}x$ [+ *k*] ($k \neq 6$) or for answer $2x + 6$ or answer $\textit{their(a)}x + 6$

46. 0580_w16_ms_22 Q: 20

	Answer	Mark	Partial Marks
(a)	(7 , 1)	**1**	
(b)	−1.25 or $-\frac{5}{4}$ or $-1\frac{1}{4}$	**2**	**M1** for rise/run
(c)	$y=\frac{4}{5}x+2$ oe	**3**	**B2** for $\frac{4}{5}x+2$ **or** $y=\frac{-1}{\textit{their}(\mathbf{b})}x+2$ oe or **M1** for $-\frac{1}{\textit{their}(\mathbf{b})}$ oe or **B1** for $\frac{4}{5}x$ seen or $[y=]\, mx+2$ $(m \neq 0)$

47. 0580_w16_ms_23 Q: 17

	Answer	Mark	Partial Marks
	$y = 2x$ oe	3	**M1** for $\frac{1-3}{12-8}$ oe **M1** for perpendicular gradient × *their* $\frac{1-3}{12-8} = -1$ oe If zero scored, **SC1** for answer $y = kx$ $k \neq 2$ or 0

48. 0580_w16_ms_23 Q: 19

	Answer	Mark	Partial Marks
(a)	Correct tangent	**B1**	No daylight between tangent and curve at point of contact. Consider point of contact as midpoint between two vertices of daylight, the midpoint must be between $x = 0.8$ and $x = 1.2$
	$2.1 \leqslant$ grad $\leqslant 3.9$	**2**	dep on **B1** **M1** for $\frac{rise}{run}$ also dep on any tangent drawn or close attempt at tangent at any point Must see correct or implied calculation from a drawn tangent
(b)	(–2, 8)	**1**	

49. 0580_m15_ms_22 Q: 14

	Answer	Mark	Partial Marks
	$3y + x = 19$ oe	3	**M1** for *their* $m \times 3 = -1$ oe or $-\frac{1}{3}$ soi **M1** for $4 = 7 \times$ *their* $m + c$

50. 0580_P15_ms_20 Q: 8

	Answer	Mark	Partial Marks
	$y = -\frac{1}{2}x + 10$ oe	3	**M2** for $-\frac{1}{2}x + 10$ or **M1** for gradient identified as $-\frac{1}{2}$ or intercept as 10 (not on diagram) e.g. $y = mx + 10$ **or** $y = -\frac{1}{2}x + c$

51. 0580_s15_ms_21 Q: 8

	Answer	Mark	Partial Marks
	13.6 or 13.60...	3	**M2** for $\sqrt{(-4-7)^2 + (6-(-2))^2}$ oe or **M1** for $(-4-7)$ oe or $(6-(-2))$ oe

52. 0580_s15_ms_22 Q: 17

	Answer	Mark	Partial Marks
(a)	[$y =$] $2x + 3$ cao	3	**M2** for correct unsimplified equation or **B1** for gradient = (11 – 3) ÷ (4 – 0) or better and **B1** for $c = 3$
(b)	$-\frac{1}{2}$ oe	1FT	–1 ÷ *their m*

53. 0580_s14_ms_21 Q: 14

	Answer	Mark	Partial marks
	$y = \frac{2}{3}x - 2$ oe	4	**B1** for (9, 4) and **M2** for $y = kx - 2$ $(k \neq 0)$ or $y = \frac{2}{3}x + k$ $(k \neq 0)$ or $\frac{2}{3}x - 2$ or **M1** for $y = \frac{2}{3}x$ or $\frac{2}{3}x + k$ $(k \neq 0)$

54. 0580_s14_ms_22 Q: 5

		Answer	Mark	Partial marks
	(a)	(0, 5)	**1**	
	(b)	– 1	**1**	

55. 0580_s14_ms_23 Q: 13

		Answer	Mark	Partial marks
		$y = -0.5x + 11.5$ oe	**3**	**B2** for $y = -0.5x + k$ oe or $y = kx + 11.5$, $k \neq 0$ oe or $-0.5x + 11.5$ oe or **B1** for gradient = –0.5 oe and **B1** for y-intercept = 11.5 oe If zero scored then, **SC1** for $9 = \textit{their } m \times 5 + c$ or $13 = \textit{their } m \times -3 + c$

56. 0580_s13_ms_21 Q: 17

	Answer	Mark	Partial marks
	$y = 2x - 1$	**3**	**B2** for $y = mx - 1$ or $y = 2x + c$ or $2x - 1$ or **B1** for gradient = 2, **B1** for $c = -1$ or **SC1** for $\frac{6}{3}$ or $\frac{5--1}{3[-0]}$

57. 0580_w13_ms_22 Q: 18

	Answer	Mark	Partial marks
	(a) (1.5, 12.5) oe	**2**	**B1** for either coordinate
	(b) $y = 3x + 8$ oe	**3**	**B2** for $y = mx + 8$ or $y = 3x + c$ or $3x + 8$ or **B1** for gradient (or m) = 3 and **B1** for $c = 8$ If 0 scored, **SC1** for $23 = \textit{their } m \times 5 + c$ or for $2 = \textit{their } m \times -2 + c$ or for $12.5 = \textit{their } m \times 1.5 + c$
	(c) Most common methods: Correctly substituting P (3, 17) into $y = 3x + 8$ Showing the gradient of AP or $BP = 3$ Other methods possible.	**1**	

58. 0580_w13_ms_23 Q: 2

	Answer	Mark	Partial marks
	Any two of (20, 8) (–4, 0) (12, 24)	**2**	**B1** for one correct

59. 0580_s12_ms_22 Q: 17

	Answer	Mark	Partial marks
(a)	(–5, 0)	**2**	**B1** $(k, 0)$ or $(-5, k)$
(b)	–2	**1**	
(c)	$2\frac{1}{2}$ or $\frac{5}{2}$	**2**	**M1** $\frac{5}{4} = \frac{k}{2}$ oe

60. 0580_w12_ms_22 Q: 20

	Answer	Mark	Partial marks
	(a) 10	**2**	**M1** $x = -4$ and $x = 6$ seen
	(b) $y = -4x + 5$ oe	**2**	**B1** $y = mx + 5$ $(m \neq 0)$ or $y = -4x + k$ $(k \neq 0)$ or $y = -4x + 5$
	(c) $y = -4x + 24$ oe	**3**	**M1** $m = -4$ or gradient = –4 or $y = -4x + c$ **M1** (5, 4) substituted into $y = mx + c$