Mark scheme

Parallel and perpendicular lines

Mathematics 0580 · Questions from Paper 1, Paper 2, Paper 3 and Pape…

Total marks

49

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	2	4	4	4	5	5	6	6	11	**49**

Question 1 [2]

1(a)	5	**1**	
1(b)	$5x + k$ $(k \neq -3)$	**1**	

Question 2 [2]

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

Question 3 [4]

3	**(a)** $y = -2$ or $y + 2 = 0$	**1**	
	(b) **(i)** Ruled line parallel to **B** through (0, 2)	**1**	Must at least go through (−1, −1)
	(ii) ($y =$) $3x + 2$ cao final answer	**2**	**B1** $3x + j$ $j \neq -1$ or 2 or $kx + 2$ $k \neq 3$ **SC1** for $3x + 2$ then spoiled by the final answer

Question 4 [4]

4 **(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 $y = their(a)x + 6$ **B1** for $y = mx + 6$ $(m \neq 0$ or 2) or $y = 2x$ [+ k] or $y = their(a)x$ [+ k] $(k \neq 6)$ or for answer $2x + 6$ or answer $their(a)x + 6$

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Question 5 **[4]**

5	$y = \frac{2}{3}x - 2$ 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 $\frac{2}{3}x + k\ \ (k \neq 0)$

Question 6 **[5]**

6	$[y =] -\frac{1}{5}\ x + 28$ final answer	**5**	**B1** for midpoint (20, 24) soi **M1** for [gradient =] $\frac{39-9}{23-17}$ oe **M1** for $\frac{-1}{\textit{their gradient}}$ **M1** for substitution of *their* midpoint into *their* $y = mx + c$ oe

Question 7 **[5]**

7	(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 $\frac{1}{3}x + 1 = \textit{their}\left(mx + c\right)$ 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

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Question 8 **[6]**

8(a)	(4.5, – 1)	**2**	**B1** for each
8(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

Question 9 **[6]**

9 **(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

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Question 10 **[11]**

10(a)	(–0.5, 3)	**2**	**B1** for one correct value
10(b)	[y =] $-2x + 2$ final answer	**3**	**M1** for $\frac{-2-8}{2--3}$ or better **M1** for substitution of (–3, 8) or (2, –2) or *their* midpoint into $y = mx + c$ with *their m*
10(c)	$y = -2x + 7$ oe	**2FT**	**FT** *their* **(b)** **M1** for $y = (their-2)x + k$ ($k \neq 2$) or $y = kx + 7$ ($k \neq 0$) If zero scored, **SC1** for $(their-2)x+7$
10(d)	$x - 2y + 9 = 0$ or $2y - x - 9 = 0$ oe	**4**	**B3** for any correct equivalent in wrong form Or **M2** for $y = ½ x + k$ oe (**FT** negative reciprocal of *their* gradient in **(b)**) or **M1** for grad = ½ (**FT** negative reciprocal of *their* gradient in **(b)**) **M1** for substitution of (1, 5) into $y = mx + c$ oe with *their m*

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