Mark scheme

Coordinates, length and midpoint

Mathematics 0580 · Questions from Paper 1, Paper 2 and Paper 4

Total marks

50

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	2	2	2	3	4	3	7	11	14	**50**

Question 1 **[2]**

1	**(a)**	(4, 1)	**1**	
	(b)	Point plotted at (–1, 3)	**1**	

Question 2 **[2]**

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

Question 3 **[2]**

3	(1, 3.5)	**2**	**B1** for each

Question 4 **[2]**

4	$\left(2w, \frac{r+t}{2}\right)$ final answer	**2**	**B1** for $2w$ oe nfww or $\frac{r+t}{2}$ oe

Question 5 **[3]**

5	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

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Question 6 [4]

6	**(a)** **(i)** B at $(5, -2)$ **(ii)** $\begin{pmatrix} 10 \\ -4 \end{pmatrix}$ **(b)** $(-1, -4)$	**1** **1ft** **2ft**	 **B1**, **B1** follow through their B plotted

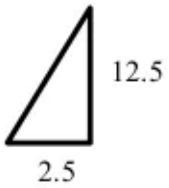
Question 7 [3]

7	$[C =]$ (7.5, 3) $[D =]$ (9.5, 6.5)	**3**	**B2** for $[C =]$ (7.5, 3) or $[D =]$ (9.5, 6.5) or for $[C =]$ (7.5, k) **and** $[D =]$ (9.5, m) or for $[C =]$ (q, 3), $q \neq 8$ **and** $[D =]$ (s, 6.5) or **B1** for $[C =]$ (7.5, p) or (q, 3), $q \neq 8$ or $[D =]$ (9.5, r) or (s, 6.5)

Question 8 [7]

8(a)(i)	19.5	**1**	
8(a)(ii)	$[a =]\ b - 5$ oe	**3**	**M1** for $3 = \frac{27-12}{b-a}$ oe **M1** for $3(b - a) = 27 - 12$ or better e.g. $[a =]\ b - \frac{27-12}{3}$

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8(b)	(20.5, 26.5) or $(\frac{41}{2}, \frac{53}{2})$	**3**	**SC2** for answer (25.5, 51.5) or $(\frac{51}{2}, \frac{103}{2})$ OR **M2** for $23-\frac{5}{2}(23-22)$ or $39-\frac{5}{2}(39-34)$ oe or sketch  or vector e.g. $\begin{pmatrix}2.5\\12.5\end{pmatrix}$ or $\begin{pmatrix}-2.5\\-12.5\end{pmatrix}$ or **M1** for  $\frac{5}{2}(23-22)$ or $\frac{5}{2}(39-34)$ or vector e.g. $\begin{pmatrix}1\\5\end{pmatrix}$ or $\begin{pmatrix}-1\\-5\end{pmatrix}$

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Question 9 **[11]**

9(a)	$3\sqrt{17}$ cao	**5**	**B4** for answer equivalent to $3\sqrt{17}$ but not in the correct form e.g. $\frac{3\sqrt{68}}{2}$, $\frac{6\sqrt{17}}{2}$, $\sqrt{153}$ OR **B3** for $\sqrt{68}$ or $2\sqrt{17}$ or **M2** for $(9-1)^2+(-5--3)^2$ oe or **M1** for $(9-1)$ or $(-5--3)$ oe and **M1** for $\sqrt{their\ 68}\times\frac{3}{2}$ oe
9(b)	$(-4, 5)$	**2**	**B1** for each coordinate
9(c)	$y=\frac{1}{4}x+6$ final answer	**4**	**M1** for $[\text{grad } BD =]\frac{9-1}{-5--3}$ oe **M1** for $[\text{grad } AC =]\frac{-1}{their\ \text{grad } BD}$ **M1** for *their* $(-4, 5)$ substituted into $y = their\ mx + c$ oe

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Question 10 **[14]**

10(a)	(5, 2) (2, − 2)	**4**	**B3** for 3 correct values or answers for *C* and *D* reversed or correct coordinates given on diagram wrongly labelled or **B2** for one correct coordinate pair correctly labelled or **M2** for *A*,*B*,*C* and *D* correctly plotted or **M1** for *A* and *B* correctly plotted If 0 or 1 scored instead award **SC2** for answers (–3, 8) and (–6, 4) or answers (1.5,1.5) and (–2.5, 4.5)
10(b)(i)	(2.5, 3.5) oe	**2**	**B1** for each
10(b)(ii)	7.07 or 7.071...	**3**	**M2** for $(6--1)^2+(4-3)^2$ oe or **M1** for $(6--1)$ or $(4-3)$ oe
10(b)(iii)	$\frac{1}{7}$	**2**	**M1** for $\frac{4-3}{6--1}$ oe
10(b)(iv)	$y=\frac{1}{7}x-\frac{2}{7}$ or $7y=x-2$ oe final answer	**3**	**M1** for gradient = *their* **(iii)** **M1dep** for substituting (2, 0) in a linear equation with their *m* allow if (2,0) satisfies y=(*their***(b)(iii)** gradient)*x*+c

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