Mark scheme

Squares, roots and surds

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

Total marks

29

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
1	2	2	2	2	3	3	4	4	6	**29**

Question 1 **[1]**

1	1.4	**1**	

Question 2 **[2]**

2	**(a)**	14	**1**	
	(b)	1296	**1**	

Question 3 **[2]**

3	32 800 cao	**2**	**B1** for 32 768 or *their* answer of more than 3 figures correctly rounded to 3 sf

Question 4 **[2]**

4	$\frac{2}{9}$	**2**	**B1** for $\frac{8}{36}$ or $\frac{4}{18}$

Question 5 **[2]**

5(a)	23 or $\sqrt{144}$	**1**	Accept 12 for $\sqrt{144}$
5(b)	$\sqrt{15}$	**1**	

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Question 6 **[3]**

6	$\frac{7\pi}{2}$ or 3.5π	**3**	**M2** for $2\pi\times7=4x$ oe or **M1** for $2\pi\times7$ or 14π or $4x$

Question 7 **[3]**

7	$2(4-\sqrt{6})$ or $8-2\sqrt{6}$	**3**	**M2** for $\frac{20\left(4-\sqrt{6}\right)}{16+4\sqrt{6}-4\sqrt{6}-6}$ oe or better or **M1** for $\frac{20}{4+\sqrt{6}}\times\frac{4-\sqrt{6}}{4-\sqrt{6}}$ oe

Question 8 **[4]**

8(a)	$(29+21)\times(29-21)$ $=50\times8$	**M1**	
	400	**A1**	
8(b)	12000	**2**	**M1** for $\left(17^2-13^2\right)[\times100]$ oe

Question 9 **[4]**

9(a)	$3\sqrt{3}$ cao	**2**	**M1** for $\frac{9}{\sqrt{3}}\times\frac{\sqrt{3}}{\sqrt{3}}$ oe
9(b)	$[c=]-1$ $[k=]$ 14	**2**	**B1** for each or for 3 correct terms from $5+15\sqrt{2}-\sqrt{2}-3\sqrt{2}\sqrt{2}$ oe

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Question 10 **[6]**

10(a)	$5\sqrt{3}$	**2**	**B1** for $3\sqrt{3}$ or $2\sqrt{3}$
10(b)	16	**2**	**M1** for $40\times 2\sqrt{2}$, $8\times 2\sqrt{2}$, $\frac{8\sqrt{4}\sqrt{2}}{\sqrt{2}}$ or $\frac{40\ \sqrt{8}\sqrt{2}}{5\sqrt{2}\sqrt{2}}$ or better or **B1** for $8\sqrt{4}$ or $\sqrt{256}$
10(c)	$\frac{3+\sqrt{5}}{4}$	**2**	**M1** for $\frac{1}{3-\sqrt{5}}\times\frac{3+\sqrt{5}}{3+\sqrt{5}}$ oe

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