Mark scheme

Formulae: forming and changing the subject

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

Total marks

31

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	2	2	2	3	3	3	4	5	5	**31**

Question 1 [2]

1	$p = \frac{m-32}{9}$ final answer oe	**2**	**M1** for $m - 32 = 9p$ or $\frac{m}{9} = p + \frac{32}{9}$ oe

Question 2 [2]

2	$\sqrt{\frac{A}{4\pi}}$ or $\frac{1}{2}\sqrt{\frac{A}{\pi}}$ oe	**2**	**M1** for $r^2 = \frac{A}{4\pi}$ or $2r\sqrt{\pi} = \sqrt{A}$ or $4r^2 = \frac{A}{\pi}$ or $\pi r^2 = \frac{A}{4}$

Question 3 [2]

3	$[w =] \frac{P}{2} - h$ or $\frac{P-2h}{2}$ final answer	**2**	**M1** for $w + h = \frac{P}{2}$ or $2w + 2h = P$

Question 4 [2]

4	$\frac{A-\pi r^2}{\pi r}$ or $\frac{A}{\pi r} - r$ oe final answer	**2**	**M1** for $A - \pi r^2 = \pi rl$ or $\pi r^2 - A = -\pi rl$ or $\frac{A}{\pi r} = l + r$

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Question 5 **[3]**

5	$\frac{a(2-t)}{3}$ cao oe	**3**	**M1** correct re-arrangement to isolate the term in w **M1** correct multiplication by a **M1** correct division by their 3 An incorrect answer scores a maximum of **M2**

Question 6 **[3]**

6	$\frac{4+bc}{c}$ or $\frac{4}{c}+b$ cao	**3**	**M1** correct move completed **M1** second correct move completed **M1** third correct move completed

Question 7 **[3]**

7	$4 \pm \sqrt{y-6}$	**3**	**M1** for *their* 6 moved correctly **M1** for *their* √ taken correctly **M1** for *their* 4 moved correctly

Question 8 **[4]**

8	$m = \frac{k}{P-1}$ final answer	**4**	**B3** for final answer $\frac{k}{P-1}$ OR **M1** for multiplying or dividing by m correctly **M1** for term(s) in m on one side correctly and terms not in m on the other side correctly **M1** for correctly factorising m with a 2-term bracket oe **M1** for correct division by *their* 2-term bracket with m as the subject To a maximum of **M3** for an incorrect answer

Question 9 **[5]**

9	**(a)** 2.84	**2**	**M1** correct substitution of g and l seen
	(b) $\frac{4\pi^2 l}{T^2}$ oe	**3**	**M1** each correct move but third move marked on answer line

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Question 10 **[5]**

10(a)	2925	**2**	**M1** for $100(3^2 + 4.5^2)$ or **B1** for 29.25 seen
10(b)	$[\pm]\sqrt{\frac{P}{M} - h^2}$ or $[\pm]\sqrt{\frac{P - Mh^2}{M}}$ final answer	**3**	**M1** for correct division by M **M1** for correct re-arrangement to isolate g or g^2 **M1** for correct square root of two term expression Max **2** marks for an incorrect answer

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