Mark scheme

Areas and volumes of similar shapes

Mathematics 0580 · Paper 2 (Extended)

Total marks

33

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
2	2	2	3	3	3	4	4	4	6	**33**

Question 1 **[2]**

1		48	**2**	**M1** for 15^2 or $\left(\frac{1}{15}\right)^2$ or $\frac{1}{15^2}$ or $\sqrt{10800}$ or $\frac{1}{\sqrt{10800}}$

Question 2 **[2]**

2	2.1	**2**	**M1** for $\frac{33.6\times 25000^2}{100000^2}$ oe or answer figs 21

Question 3 **[2]**

3	80	**2**	**M1** for $\left(\frac{12}{3}\right)^2$ or $\left(\frac{3}{12}\right)^2$ oe or $\frac{3^2}{5}=\frac{12^2}{A}$ oe

Question 4 **[3]**

4	6.35 or 6.349 to 6.350	**3**	**M2** for $\frac{8}{h}=\sqrt[3]{\frac{0.5}{0.25}}$ oe or **M1** for $\left(\frac{8}{h}\right)^3=\frac{0.5}{0.25}$ oe or for $\sqrt[3]{\frac{0.5}{0.25}}$ or $\sqrt[3]{\frac{0.25}{0.5}}$ oe

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Question 5 **[3]**

5	99	**3**	**M2** for $44\times\left(\frac{81}{24}\right)^{\frac{2}{3}}$ oe or **M1** for $\left(\frac{81}{24}\right)^{\frac{1}{3}}$ oe or $\left(\frac{24}{81}\right)^{\frac{1}{3}}$ oe or $\left(\frac{44}{Area}\right)^{3}=\left(\frac{24}{81}\right)^{2}$ oe

Question 6 **[3]**

6	4.2 oe	**3**	**M2** for $\sqrt[3]{1+\frac{72.8}{100}}\times 3.5$ oe or **M1** for $\frac{\sqrt[3]{172.8}}{\sqrt[3]{100}}$ oe or $\frac{\sqrt[3]{100}}{\sqrt[3]{172.8}}$ oe or $\frac{x^3}{3.5^3}=\frac{172.8}{100}$ oe

Question 7 **[4]**

7(a)	4.5 oe	**2**	**M1** for $\frac{8}{6}=\frac{6}{QR}$ oe or better
7(b)	135	**2**	**M1** for $\left(\frac{6}{8}\right)^3$ or $\left(\frac{8}{6}\right)^3$ or $\left(\frac{their 4.5}{6}\right)^3$ oe

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Question 8 **[4]**

8	160	**4**	**M3** for $V \div \frac{2500}{8} = \frac{12^3}{15^3}$ oe or for answer figs 16 from $\frac{figs25}{8} \times \frac{12^3}{15^3}$ or **B2** for 1.28 [kg] OR **M1** for 2500 ÷ 8 oe or 312.5 seen **M1** for $\left(\frac{12}{15}\right)^3$ or $\left(\frac{15}{12}\right)^3$ oe

Question 9 **[4]**

9	3 : 5 nfww	**4**	**M3** for $5^2 - 1$ oe and $8^2 - 5^2 + 1$ oe or **M2** for $5^2 - 1$ oe or $8^2 - 5^2 + 1$ oe or **M1** for 5^2 oe or 8^2 oe seen

Question 10 **[6]**

10(a)	Similar	**1**	
10(b)	4	**2**	**M1** for $\frac{12}{6} = \frac{8}{BX}$ oe or better If **0** scored **SC1** for answer 3.5
10(c)(i)	6.7265 or 6.73 or 6.726 to 6.727	**2**	**M1** for scale factor 2^2 or $\left(\frac{1}{2}\right)^2$ oe soi
10(c)(ii)	13.453 or 13.5 or 13.45 to 13.46	**1**	**FT** *their* **(c)(i)** × 2

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