Paper: 1MA1/3H				
Question	**Working**	**Answer**	**Mark**	**Notes**
14 **Q1**		Shown	M1	for $\sqrt[3]{\frac{8}{27}}$ (= $\frac{2}{3}$) or $\sqrt[3]{\frac{27}{8}}$ (= $\frac{3}{2}$) or 2 : 3 or 3 : 2
			M1	for $\left(\sqrt[3]{\frac{8}{27}}\right)^2$ (= $\frac{4}{9}$) or $\left(\sqrt[3]{\frac{27}{8}}\right)^2$ (= $\frac{9}{4}$) or 4 : 9 or 9 : 4
			A1	132 from correct arithmetic

Paper: 1MA1/2H				
Question	**Working**	**Answer**	**Mark**	**Notes**
5 (a)		3.9	M1	for a ratio of $\frac{8.1}{5.4}$ (=1.5) oe or $\frac{5.4}{8.1}$ (=0.66..) oe or $\frac{2.6}{5.4}$ (= 0.48..) oe or $\frac{5.4}{2.6}$ (= 2.07..) oe
Q2			A1	cao
(b)		2.05	M1	for $\frac{5.4}{8.1} \times 6.15$ oe (= 4.1) or $\frac{2.7}{8.1} \times 6.15$ oe or ft "scale factor" from (a)
			A1	cao

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
13 **Q3**	6.50	M1	for method to find ratio or scale factor of lengths or volumes eg $\sqrt{3}$: 2 or 1 : 1.15(47....) or 0.86(60…) : 1 or $\sqrt{27}$: 8 oe	Scale factors may just be seen as 1.15..., 0.86...etc
		M1	for complete method to find ratio of volumes and use to find required volume eg 10 ÷ ("1.15...")^3 or 10 × (“0.86…”)^3	
		A1	for answer in the range 6.49 to 6.53	If an answer is given within the range then incorrectly rounded to 3 sig figs, award full marks. Accept 6.5

Paper: 1MA1/2H					
Question	**Answer**	**Mark**	**Mark scheme**		**Additional guidance**
14 **Q4**	116	P1	for setting up an equation, eg $(x + 4)^2 = x^2 + 70$	for setting up an equation, eg $x^2 - (x - 4)^2 = 70$	Equation must be in a single variable. If a candidate uses a trial and improvement method, it is either full marks or no marks.
		P1	for process to reduce equation down to a linear equation ready to solve eg $8x = 54$ oe	for process to reduce equation down to a linear equation ready to solve eg $8x = 86$ oe	Candidates must get as far as $ax = b$
		A1	for 6.75 oe	for 10.75 oe	
		B1	ft (dep P2) for finding the area of B **or** for answer in range 115 to 116		

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19 **Q5**	Proof	P1	for start to process to find area of *ABCDEF*, eg area of equilateral triangle $= \frac{1}{2} \times x \times x \times \sin 60$ $(= \frac{\sqrt{3}}{4}x^2)$ **OR** for start to process to find area of *FGHIJK*, eg area of equilateral triangle $= \frac{1}{2} \times px \times px \times \sin 60$ $(= \frac{\sqrt{3}}{4}p^2x^2)$	Any correct process to find the area of part of the hexagon is acceptable for this mark, eg $\frac{1}{2} \times x \times x \times \sin 120$ or $\frac{1}{2} \times (x + 2x) \times \frac{\sqrt{3}}{2}x$ Allow sin 60 left in expressions for the first 3 marks.
		P1	for complete process of finding area of *ABCDEF*, eg $6 \times \frac{1}{2} \times x \times x \times \sin 60$ or $6 \times \frac{1}{2} \times x \times x \times \frac{\sqrt{3}}{2}$ $\left(= \frac{3\sqrt{3}}{2}x^2\right)$ oe **OR** for complete process of finding area of *FGHIJK*, eg $6 \times \frac{1}{2} \times px \times px \times \frac{\sqrt{3}}{2}$ $\left(= \frac{3\sqrt{3}}{2}p^2x^2\right)$ oe	
		P1	for process of finding area of *ABCDEF* eg $\frac{3\sqrt{3}}{2}x^2$ oe **AND** for process of finding area of *FGHIJK*, eg $p^2 \times \frac{3\sqrt{3}}{2}x^2$ oe	
		C1	correct algebra leading to given result, $\frac{3\sqrt{3}}{2}(p^2 - 1)x^2$	Accept $\frac{3\sqrt{3}}{2}x^2(p^2 - 1)$ as final result.

Paper: 1MA1/2H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
19 **Q6**	25 : 36	P1 P1 A1	for $\sqrt[3]{125}$ (= 5) **and** $\sqrt[3]{27}$ (= 3) oe **OR** for correct process to find the radius of A and radius of B (3.10… and 1.86…) for method to find values in ratio of length between *A* and *C* eg 5 **and** 2×3 (= 6) oe **or** "3.10…" **and** "1.86…" × 2 (=3.72…) **OR** 25 **and** 36 **OR** for correct process to find SA of A **and** SA of C (120.(8…)) and (174.(0…)) for 25 : 36 oe eg 1: 1.44	Accept scale factors expressed as fractions or decimals eg 1.66, 1.67, 0.6 or better Ignore units throughout For both P marks the lengths need not be written as a ratio

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
15 **Q7**	3 : 10	P1 P1 P1 A1	process to find ratio of lengths **A**:**B** = $\sqrt{4}$:$\sqrt{25}$ (= 2:5 or $\frac{2}{5}$ or 2, 5) for process to find ratio of lengths **B**:**C** = $\sqrt[3]{27}$: $\sqrt[3]{64}$ (= 3:4 or $\frac{3}{4}$ or 3, 4) for process to write as one ratio eg. finding a common multiple of 3 and 5 **or** 6 : 15 : 20 oe cao	Accept working in fractions for the award of process marks but the final answer must be in correct simplified ratio notation

Paper: 1MA1/1H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
17 **Q8**	4	P1	for process to find ratio of corresponding lengths, eg. $\sqrt{4}$: $\sqrt{9}$ (= 2 : 3)	
		P1	for process to find ratio of volumes, eg "2"^{3} : "3"^{3} (= 8 : 27)	
		P1	for "27" ÷ "8" (= 3.375)	This may be seen by checking their volume, eg. "8" × 4 (= 32) and "8" × 3 (= 24)
		A1	for rounding to give an answer of 4 from correct working	An answer of 4 with no supportive working gets no marks

Paper: 1MA1/3H				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
5 (a)	16	M1	for a ratio of $\frac{20}{5}$ or $\frac{5}{20}$ or 4 or 0.25 or $\frac{5}{4}$ or $\frac{4}{5}$ or 1.25 or 0.8 oe	
		A1	cao	
Q9 (b)	5.5	M1	for 22 × "0.25" or 22 ÷ "4" oe	
		A1	oe	

Paper: 1MA1/1H				
Question	**Working**	**Answer**	**Mark**	**Notes**
22 **Q10**		2, 14.5	P1 A1 P1 A1 C1	for scale factor of $\frac{12}{3}$ **or** $\frac{3}{12}$ **or** $\frac{15}{12}$ **or** $\frac{12}{15}$ **or** $\frac{8}{12}$ **or** $\frac{12}{8}$ **or** $\frac{15}{8}$ oe **or** correctly identifies 2 pairs of corresponding sides for x=2 for complete method to find other value for x eg $\frac{15}{8}\times 12 - 8$ for x = 14.5 Describes both assumptions for similarity