Section A

Question	Full marks		Part marks
1 (a)	$\frac{1}{13}$ and $\frac{12}{13}$ in correct places on three pairs of branches	W2	**W1** for 1 complete correct pair of branches
(b)	$\frac{1}{169}$	W2	**M1** for $\frac{1}{13} \times$ 'their $\frac{1}{13}$' seen
2 (a)	7n – 3 oe	W2	**M1** for 7n seen in linear expression
(b)	$x = \frac{y-6}{4}$ or $x = \frac{y}{4} - \frac{3}{2}$ mark final answer	W3	**W2** for $x = \frac{\pm y \pm 6}{\pm 4}$ **or** **M1** for 1st correct step e.g [y =] $4x + 6$ or $\frac{y}{2} = 2x + 3$ **M1** for 2nd correct step e.g $y - 6 = 4x$ or $\frac{y}{2} - 3 = 2x$ or ft their 1st step **M1** for 3rd correct step ft their 1st/2nd step N.B mark **final answer** for 3rd M1, Incorrect cancelling loses 3rd M1
3	Area none of these length	W3	**1** for each correct answer
4	rotation, 90°[anticlockwise or positive] oe e.g 270°clockwise, ¼ turn clockwise centre (1,1) condone missing brackets	W3	**W2** for rotation 90° [anti-clockwise or positive] or rotation centre (1,1) **W1** for rotation or 90° [anti-clockwise or negative] or centre (1,1), **W0** if any second transformation mentioned If W0 awarded then **M1** for clear final triangle in correct position
5	199.5, 200.5 Condone order reversed	W2	**W1** for 1 correct
6 (a)	3^8 Final Answer	W2	**M1** for $3^9 \div 3$ seen or $3^3 \times 3^5$ or $3^4 \times 3^4$ or 3^8 seen in working
(b)	$\frac{7}{15}$ indicated	W1	
(c)	$0.\dot{5}$ Final Answer	W1	

Question	Full marks	Part marks
7	80π **W4**	**M3** for $2 \times \pi 4^2 + 6 \times 8\pi$ or $2 \times 16\pi + 48\pi$ **or** **M2** for 32π **or** **M1** each for $[2 \times] \pi \times 4^2$ and $\pi \times 6 \times 8$ oe eg 16π or 48π **or** **SC3** Final Answer 240 to 251.4 or 224π or 64π from $16\pi + 48\pi$ **or** **SC1** for $2\pi \times 8^2 + \pi \times 16 \times 6$ **SC1** for 96π as answer

Section B

Question	Full marks		Part marks
8 (a)	£99.89	**W4**	**M3** for 99.891...**or** 899.89... **or** 99.9[0] **or** **M2** for 800×1.04^2 (or better) soi **or** 865.28.. **or** 899.9[0] **or** 832×1.04 **M1** for 800×1.04 soi **or** 832 **or** 896 **or** 96
9 (a)	2.5×10^{-7}	**W2**	**M1** for figs 25 seen
(b)	0.32	**W2**	**M1** for 1000 mm^3 = 1cm^3 soi
10 (a)	$\frac{1}{2} \times x \times (x-2) \times 2x$ condone lack of brackets in above expression **or** $x \times (x-2) \times 2x$ **or** $\frac{1}{2} \times x \times (x-2)$ Brackets **MUST** be used in both these two expressions	**M1**	
	$x^2(x-2)$ or $x(x^2-2x)$ Condone missing brackets if intention is clear	**A1**	
(b) (i)	$[3^3 - 2\times3^2] = 9$ **and** $[4^3 - 2\times4^2] = 32$ **or** allow any values between 3 and 4 that produce one outcome above and one below 20	**1**	Allow 3 and 4 with working crossed out and then replaced with a more accurate attempt
(b) (ii)	trial of 3.5 to give 18.3[75] trial of 3.6 to give 20.7[36] Allow outcomes rounded or truncated to 1 dp or better ans 3.6 cao independent	**1** **1** **1**	**Or** 3.5 and 3.6 with outcomes in (b)(i) after 0 **SC1** for correct trial with x between 3.1 and 3.9 with outcomes clearly shown

Question	Full marks		Part marks
11 (a)	5x = 10 or 5x = 7 + 3 or complete long method x = 2, y = –3	**M1** **W1**	
(b)	$x^2 - 2x - 35$ cao	**W2**	**M1** for 2 correct terms in 3-term final expression or 3 of $x^2 - 7x + 5x - 35$
(c) (i)	$(x-5)(x+5)$ ISW if attempt to solve	**W1**	
(c) (ii)	[+]5, –5 or ± 5	**W1**	
12	31.2 to 31.3	**W3**	**M2** for [h =] 200 × sin9 **M1** for sin9 used with h and 200 **A1** for 31 if M2 earned **SC3** for sin9 = $\frac{h}{200}$ followed by 31
13	A is better as **median** is higher average/median A =21 to 22 and or average/median B = 17 to 19	**W1** **W1**	Must be **median** not just **average** unless readings given Readings may be on the diagram