Section A

1	(a)	52	W1	Accept 52 000 000
	(b)	12	W2	**M1:** 600/50 **or** 600/52 **or** 600/'their (a)' (or 1 s.f.) **A1:** 12 **or** 10 Condone 500/50 = 10 for **W2**
			3	

2	(a)	<ABC = 90 but <ABC = 88	W1	Allow '<ACD is not 90' with justification
	(b)	<BAC = 50 and alt. seg. <ACB = (180 − 88 − 50) = 42	M1 A1	**W1:** 42
			3	

3	(a) (i)	$x^2 = (x - 1)^2 + (x - 2)^2$ (o.e.)	W1	i.s.w. / brackets req.
	(ii)	$x^2 = (x^2 - 2x + 1) + (x^2 - 4x + 4)$	W2	**W1:** one expansion correct; accept not simplified
	(b) (i)	$(x - 5)(x - 1)$ $x = 5$ (and 1)	M2 A1	**M1:** $(x \pm 5)(x \pm 1)$ (answer only: **M0**)
	(ii)	5, 3, 4	W1	condone 3 and 4 reversed
			7	

4	(a)	5	W1	
	(b)	81	W2	**M1:** 3^4 (num) **or** 1 (den)
			3	

5		$T = \dfrac{200}{R^2}$	W2	**M1:** $k = 200$ **or** $8 = k/25$ **or** $8 = k/5^2$ (**SC1:** $T \alpha \, 200/R^2$)
			2	

6	(a)	$(x - 2y)(x + 2y)$	W2	**M1:** $(x \pm 2y)(x \pm 2y)$
	(b)	$(x - 2y)/5$	W2	**M1:** $5(x + 2y)$
			4	

7		$L = \dfrac{T^2 G}{(2\pi)^2}$ (o.e.)	W3	**M1:** $\sqrt{(L/G)} = T/2\pi$ **or** $T^2 = (2\pi)^2 L/G$ or **M2:** $L/G = T^2/(2\pi)^2$ **or** $T^2 G = (2\pi)^2 L$ **SC1:** $G(T − 2\pi)^2 (= L)$ **or** $(2\pi T)^2 G$ **or** $GT^2/2\pi$ **or** $T^2 G/2\pi^2$
			3	
			25	