Question	Answer	Marks	AO Element	Notes	Guidance
1	Enlargement [sf] $-\dfrac{1}{2}$ [centre] (4, 4)	3		**B1** for each	
2(a)	Triangle drawn at (2, −1), (2, −4), (3, −4)	2		**B1** for two correct points If 0 scored, **SC1** for reflection of triangle T in $y = -x$	
2(b)	Triangle drawn at (−5, 6), (−2, 5), (−5, 5)	2		**B1** for translation by $\begin{pmatrix} -1 \\ k \end{pmatrix}$ or by $\begin{pmatrix} k \\ 3 \end{pmatrix}$ If 0 scored **SC1** for triangle drawn at (−4.5, 3.5), (−4.5, 4.5) and (−1.5, 3.5)	
2(c)	Enlargement [SF] −1.5 oe [centre] (0, 3)	3		**B1** for each	
3(a)	Triangle at (−1, 1) (−4, 2) (−3, 5)	1			
3(b)	Triangle at (−2, −3) (1, −2) (0, 1)	2		**B1** for translation by $\begin{pmatrix} -3 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ -4 \end{pmatrix}$	

Question	Answer	Marks	AO Element	Notes	Guidance
4(a)(i)	Rotation 90° anticlockwise oe (0, − 1)	**3**		**B1** for each	
4(a)(ii)	enlargement [s.f.] $\dfrac{1}{3}$ (6, 6)	**3**		**B1** for each	
4(b)	triangle at (− 4, 7) (− 4, 1) (− 1, 1)	**2**		**B1** for translation by $\begin{pmatrix} k \\ 10 \end{pmatrix}$ or $\begin{pmatrix} 2 \\ k \end{pmatrix}$	
5(a)(i)	rotation 90 anticlockwise oe (−3, 2)	**3**		**B1** for each	
5(a)(ii)	enlargement $-\dfrac{1}{2}$ (−2, −1)	**3**		**B1** for each	
5(b)	Image at (−3, −5) (1, −5) (1, 3)	**2**		**B1** for translation by $\begin{pmatrix} -5 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ -10 \end{pmatrix}$	

Question	Answer	Marks	AO Element	Notes	Guidance
5(c)	Image at (2, 3) (6, 3) (6, −5)	**2**		**B1** for reflection in $y = k$ or $x = 4$	
6(a)	Triangle at (−4, −4) (−1, −3) (−4, −3)	**2**		**B1** for correct points not joined or for reflection in any $y = k$ or for reflection in $x = -1$	
6(b)	Triangle at (1, 1) (1, 4) (2, 4)	**2**		**B1** for correct points not joined or rotation 90° clockwise around any point or rotation 90° anticlockwise around (0, 0)	
6(c)	Translation $\begin{pmatrix} 5 \\ -6 \end{pmatrix}$	**2**		**B1** for translation or correct vector oe	
7(a)(i)	triangle with vertices at (−2, −1) (−8, −1) (−2, −5)	**2**		**B1** for correct reflection in $y = x$	
7(a)(ii)	triangle with vertices at (−1, −1) (−1, −7) (3, −7)	**2**		**B1** for translation by $\begin{pmatrix} k \\ -9 \end{pmatrix}$ or $\begin{pmatrix} -2 \\ k \end{pmatrix}$	

Question	Answer	Marks	AO Element	Notes	Guidance
7(b)(i)	Enlargement [centre] (−7, 8) [sf] ½	**3**		**B1** for each	
7(b)(ii)	Rotation [centre] (0, 0) 90° clockwise oe	**3**		**B1** for each	
8(a)(i)	Reflection $x = 1.5$	**2**		**B1** for each	
8(a)(ii)	Rotation (0, −1) 90° [anticlockwise] oe	**3**		**B1** for each	
8(b)(i)	Image at (5, −1) (6, −1) (6, −3)	**2**		**B1** for correct size and orientation but wrong position If 0 scored, **SC1** for enlargement SF $\dfrac{1}{2}$ with centre (3, 0)	
8(b)(ii)	Image at (−6, 3) (−4, 3) (−6, 7)	**2**		**B1** for translation $\begin{pmatrix} -3 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ 1 \end{pmatrix}$	

Question	Answer	Marks	AO Element	Notes	Guidance
9(a)	Enlargement [centre] (2, 1) [sf] 2	3		**B1** for each	
9(b)	Rotation [centre] (0, 0) 180°	3		**B1** for each	
9(c)(i)	Triangle at (–3, 4) (0, 4) (–3, 6)	2		**B1** for translation by $\begin{pmatrix} -5 \\ k \end{pmatrix}$ or $\begin{pmatrix} k \\ 3 \end{pmatrix}$	
9(c)(ii)	Triangle at (2, –5) (5, –5) (2, –7)	2		**B1** for reflection in $y = k$ $(k \neq -2)$	
					[Total: 66]