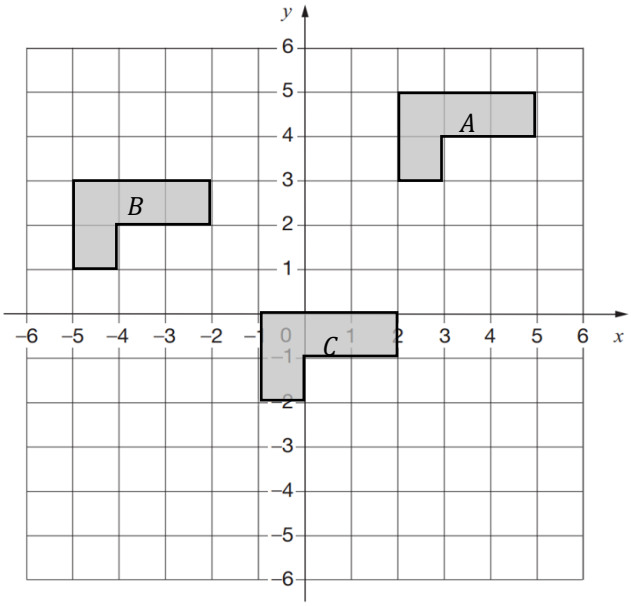
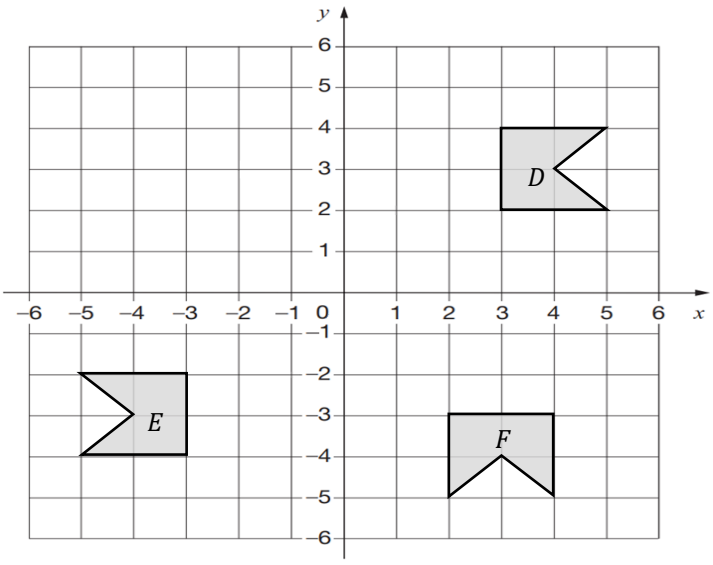
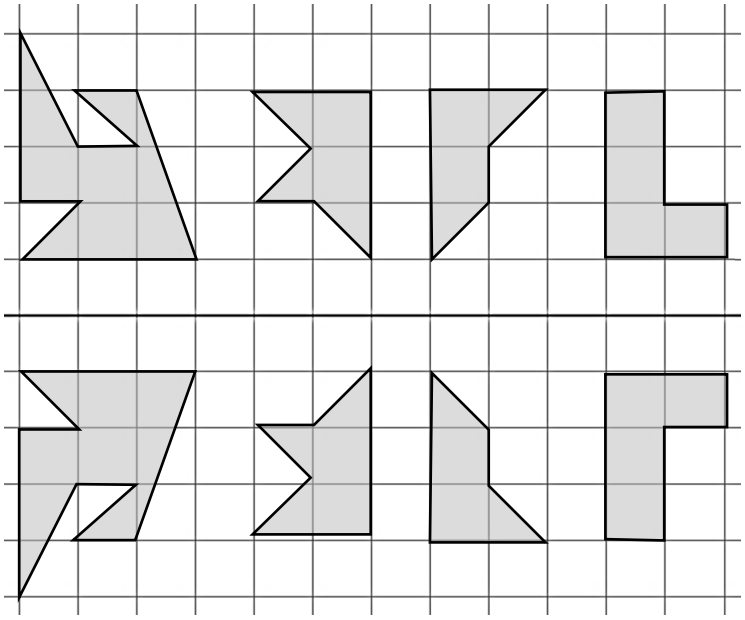
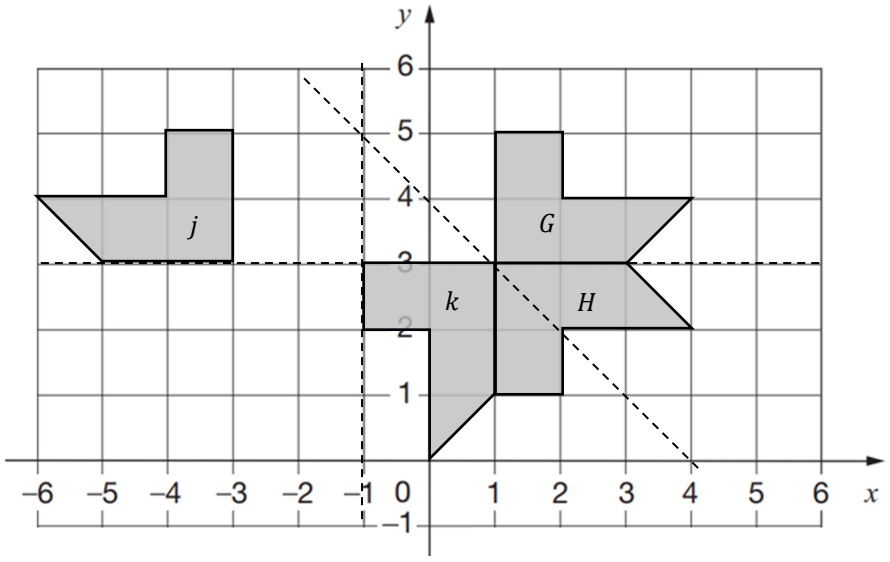
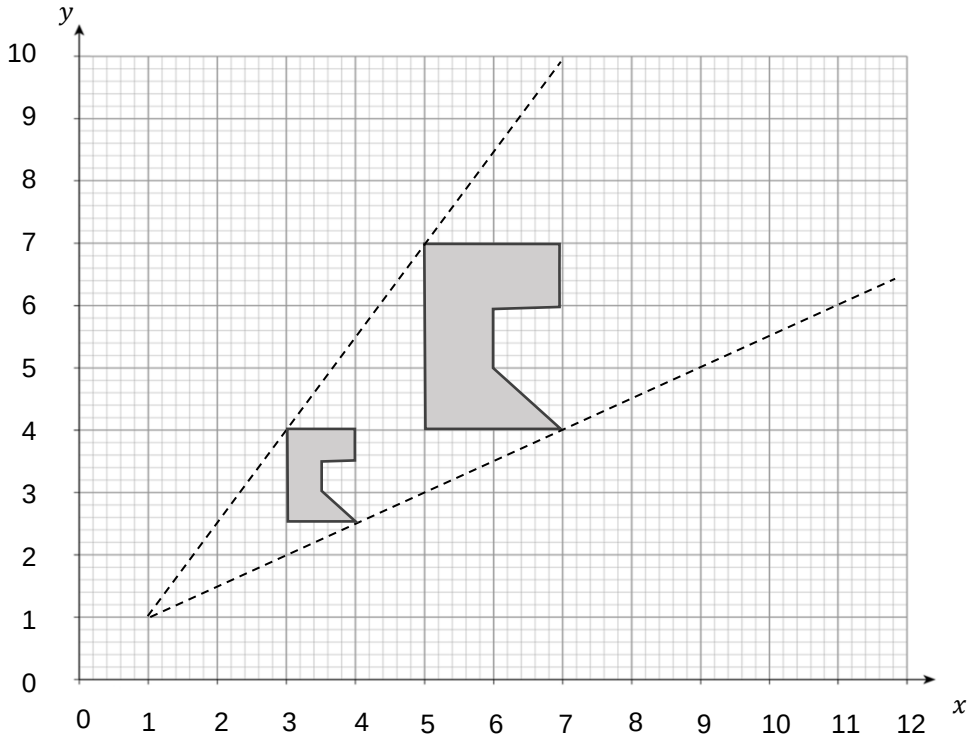
	Transformations Mark scheme:	
1		
1(a)	Correct transformation in x-y coordinates from A to B	**[2]**
1(b)	Correct transformation in x-y coordinates from B to C	**[2]**
1(c)	Translation by the vector $\begin{pmatrix}-3\\-5\end{pmatrix}$	**[1] Correct x-translation** **[1] Correct y-translation**
2		
2(a)	Correct transformation in x-y coordinates from D to E	**[2]**
2(b)	Correct transformation in x-y coordinates from E to F	**[2]**

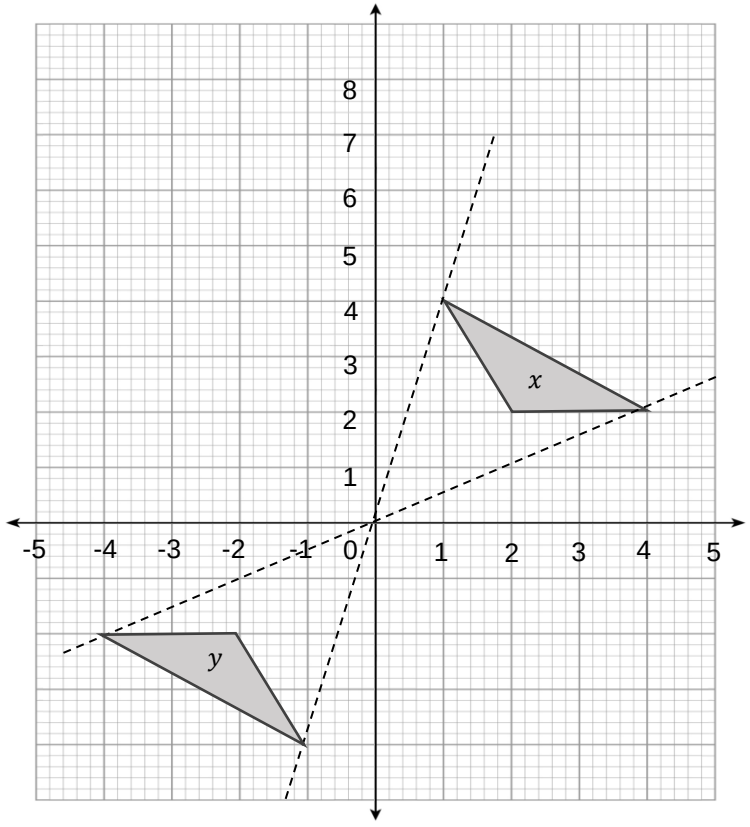
3		
		[4]
4		
	H, J and K	**[3]** A mark for each shape in the correct position

5

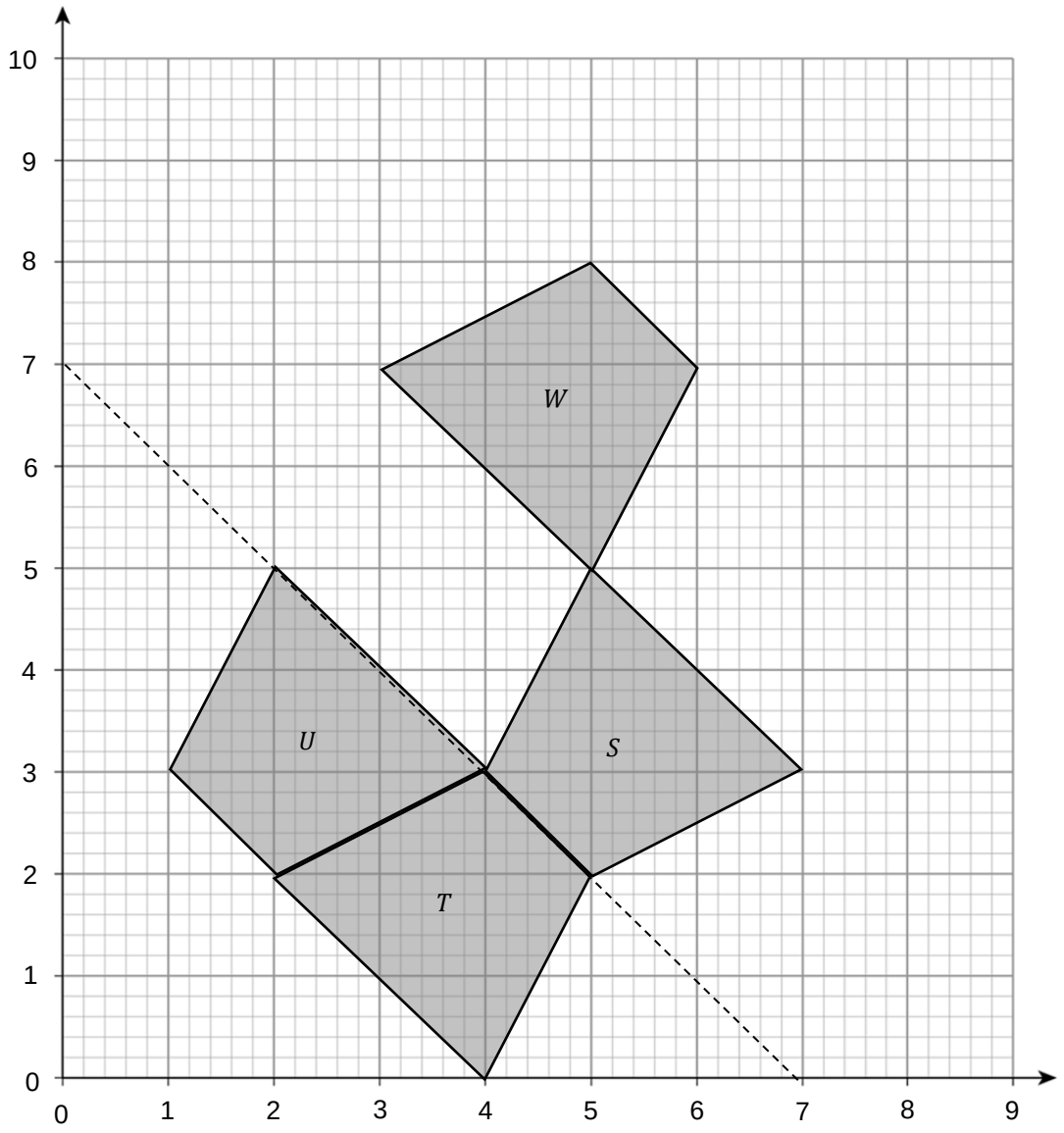


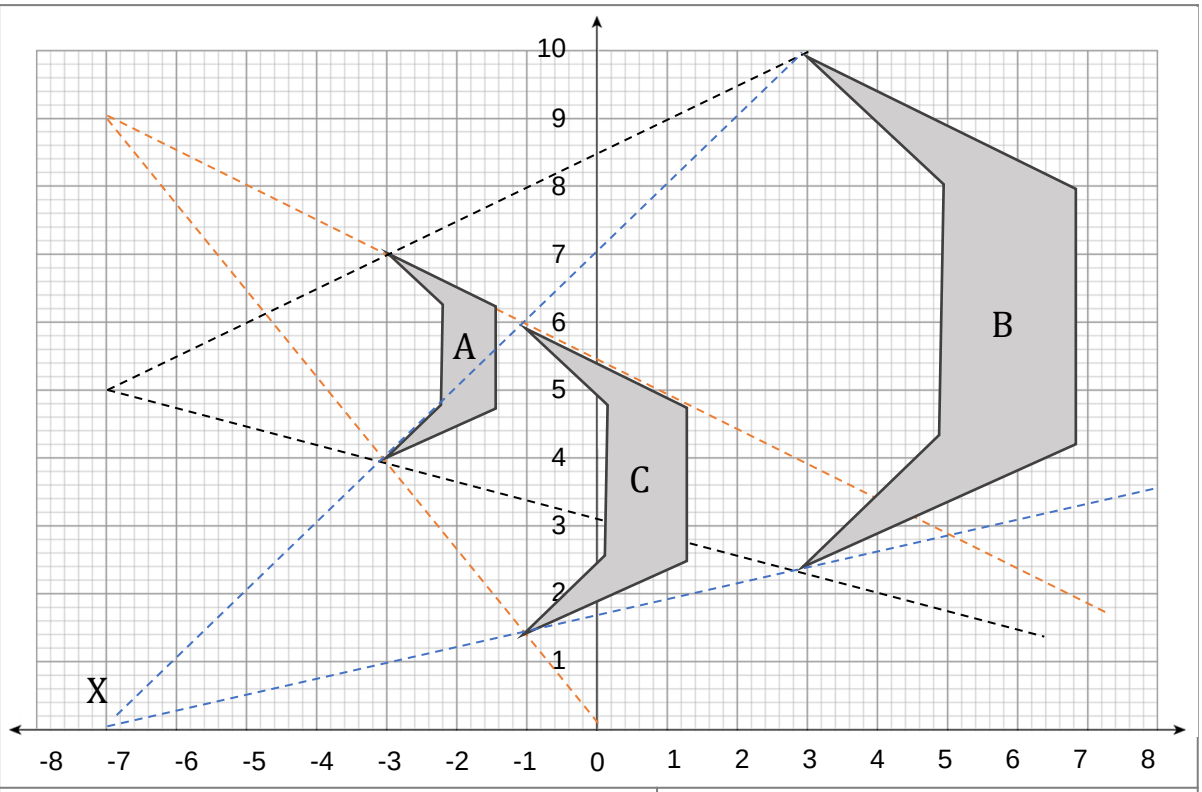
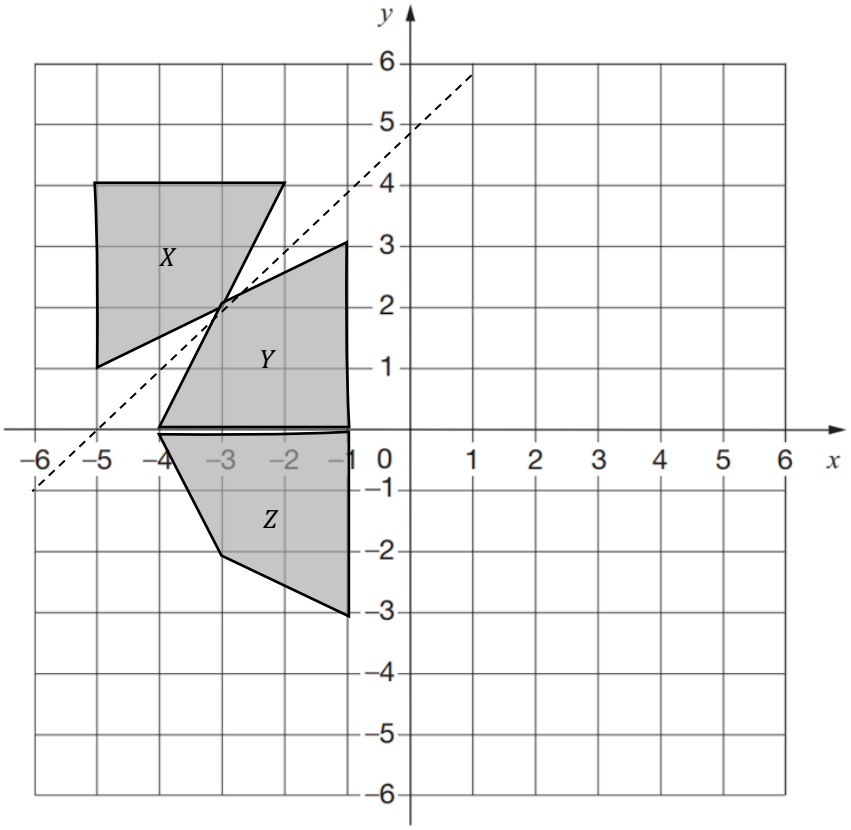
[3] Correct size, position and centre of enlargement used

6



[3] Correct size, position and centre of enlargement used

7(a)	$Reflection\ in\ the\ line\ x = 0$	**[1]** $line\ x = 0$ must be stated
7(b)	$Translation\ \begin{pmatrix} -6 \\ -4 \end{pmatrix}$	**[1]**
7(c)	$Rotation\ of\ 180°\ about\ (1, -1)$	**[1] or** $Enlargement\ of\ -1\ at\ (1, -1)$
7(d)	$Rotation\ of\ 180°\ about\ (3\ , -0.5)$	**[1] or** $Enlargement\ of\ -1\ at\ (3, -0.5)$
7(e)	$Reflection\ in\ the\ line\ y = x - 2$	**[1] or** $Rotation\ of\ 180°\ about\ (3.5\ , 1.5)$
8		
	Invariant points (5,2) , (4,2) , (5,5)	**[6]** 1 mark for each correct transformation and 1 mark for each correct invariant point given

9		
		[6] Award marks for part (b) and (c) if errors carried forward from part (a)
10		
	No, because translating a shape moves all of the points.	**[5]** Award marks for part (b) and (c) if errors carried forward from part (a)

END