

Question	Answer	Marks	Guidance
(a)	EITHER (1){Translation} $\begin{pmatrix} \{30^\circ\} \\ \{0\} \end{pmatrix}$ OR (2){Translation} $\begin{pmatrix} \{60^\circ\} \\ \{0\} \end{pmatrix}$	B2,1,0	B2 for fully correct, B1 with two elements correct. { } indicates different elements. Accept angle in radians.
	(3){Stretch} {factor 2} {in x-direction}	B2,1,0	B2 for fully correct, B1 with two elements correct. { } indicates different elements.
	(4) Stretch factor 4 in y-direction and correct order	B1	Stretch, y-direction and factor and correct order. Correct order is either (1) then (3) or (3) then (2). (4) can be anywhere in the sequence.
		5	
(b)	$4\sin\left(\frac{1}{2}x - 30^\circ\right) = 2\sqrt{2} \Rightarrow \sin^{-1}\left(\frac{\sqrt{2}}{2}\right) [= 45]$	M1	SOI
	$\frac{1}{2}x - 30 = 45 \text{ or } 135 \Rightarrow x = 2(45 + 30) \text{ or } x = 2(135 + 30)$	M1	SOI. The M marks are independent.
	$x = 150^\circ, x = 330^\circ$	A1	Both exact values, condone $\frac{5\pi}{6}, \frac{11\pi}{6}$. A0 if extra solutions in the interval. Ignore other solutions outside $[0^\circ, 360^\circ]$.
		3	