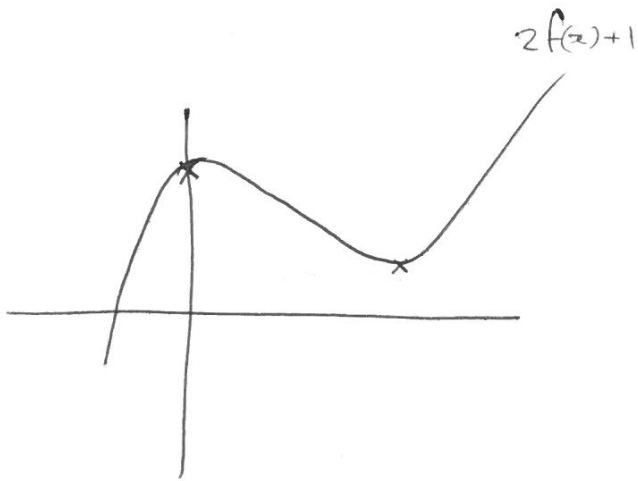
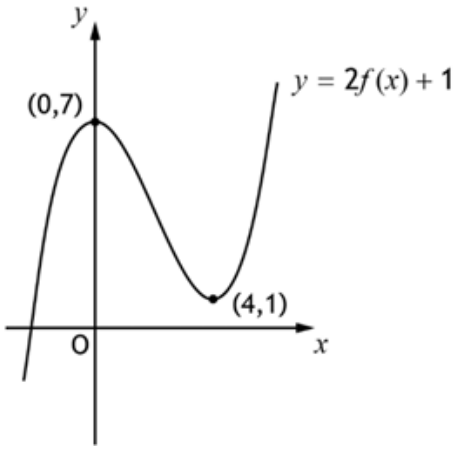
$x = 60°, 300°$

10. a) $(0,3)$ $(4,0)$
$(0,6)$ $(4,0)$ $2f(x)$
$(0,7)$ $(4,1)$ $+1$



b) $f\left(\frac{1}{2}x\right)$ means $\div x$ by $\frac{1}{2}$

$(0,3)$ $(8,0)$

Question			Generic Scheme	Illustrative Scheme	Max Mark
10.	(a)		$\bullet^1$ vertical scaling by a factor of 2 identifiable from graph $\bullet^2$ vertical translation of '+1' units identifiable from graph $\bullet^3$ transformations applied in correct order	$\bullet^1$ $\bullet^2$ $\bullet^3$  	**3**

Notes:

1. $\bullet^1$, $\bullet^2$ and $\bullet^3$ are only available for a 'cubic' with a maximum and minimum turning point.
2. Ignore intersections (or lack of intersections) with the original graph.

Commonly Observed Responses:

Where the image of (4,0) is not (4,1), that point must be annotated (or drawn to within tolerance). In the following table, the images of the given points must be stationary points for the marks to be awarded.

Image of (0,3)	Image of (4,0)	Award…	
(0,8)	(4,2)	2/3	Transformation in wrong order
(0,4)	(8,1)	1/3	Only vertical translation correct
(0,4)	(4,1)	1/3	
(0,4)	(2,1)	1/3	
(0,5)	(4,−1)	2/3	Evidence of vertical scaling and transformation in correct order
(0,6)	(4,0)	1/3	Evidence of vertical scaling
(0,7)	any incorrect point	1/3	
(1,6)	(5,0)	1/3	
(−1,6)	(3,0)	1/3	
(0,−2)	(4,1)	1/3	Evidence of vertical translation
(0,4)	(−4,1)	1/3	
(0,5)	any other point	0/3	Insufficient evidence of scaling/translation
(0,2)	any other point	0/3	

Question			Generic Scheme	Illustrative Scheme	Max Mark
10.	(b)		$\bullet^4$ state coordinates of stationary points	$\bullet^4$ $(0,3)$ and $(8,0)$	**1**
Notes:					
Commonly Observed Responses:					