

Q1. (2018)

(A)

29(a)	Alternative method 1		
	$(x+3)^2 - 1$	M1	
	$x^2 + 3x + 3x + 9 - 1$ or $x^2 + 6x + 8$	M1	oe
	$b = 6$ and $c = 8$	A1	SC1 $b = 6$ or $c = 8$
	Alternative method 2		
	$(x-3)^2 + b(x-3) + c = x^2 - 1$	M1	
	$x^2 - 6x + 9 + bx - 3b + c = x^2 - 1$	M1	
	$b = 6$ and $c = 8$	A1	SC1 $b = 6$ or $c = 8$
	Alternative method 3		
	$(x+3+1)(x+3-1)$ or $(x-4)(x-2)$ or $(x+4)(x+2)$	M1	difference of two squares from the original roots
	$x^2 + 4x + 2x + 8$ or $x^2 + 6x + 8$	M1	
	$b = 6$ and $c = 8$	A1	SC1 $b = 6$ or $c = 8$
	Additional Guidance		
	Working out the roots of the original curve or the translated curve is not enough for M1 in alt 3		

(B)

29(b)	$y = 1 - x^2$ or $y = -x^2 + 1$	B1	oe equation
	Additional Guidance		
	$-y = x^2 - 1$		B1
	$y = -(x^2 - 1)$		B1
	$y = -(x-1)(x+1)$		B1
	$y = 1 - (-x)^2$		B1
	$(y = 1 - x^2 \text{ in working with answer}) 1 - x^2$		B0
	$y = (-x)^2 + 1$		B0
	$f(x) = 1 - x^2$		B0