Proof (Foundation) Mark Scheme		
1(a)	$10x - 15$	[1] Expand brackets
	$10x - 15 \quad - 2$ $10x - 17$	[1] Collect like terms
1(b)	$n^2 \; - 4n + 4$	[1] Expand brackets
	$n^2 \; - 4n + 4 + 3$ $n^2 - 4n + 7$	[1] Collect like terms
1(c)	$x^2 + 2x + 1$	[1] Expand brackets
	$x^2 + 2x + 1 \; - x^2$	[1] Collect like terms
2(a)	$5(3x - 5) - 2(2x + 9) = 15x - 25 - 4x - 18$	[1] Expanding brackets
	$= 15x - 4x - 25 - 18$	[1] Grouping like terms
	$\equiv 11x - 43$	[1] Answer as required
2(b)	$(n - 2)^2 - (n - 5)^2$ $= n^2 - 2n - 2n + 4 - (n^2 - 5n - 5n + 25)$	[1] Expanding brackets
	$= \; n^2 - n^2 - 4n + 10n + 4 - 25$ $= 6n - 21$	[1] Grouping like terms
	$\equiv 3(2n - 7)$	[1] Answer as required
2(c)	$(n + 2)(n + 2) - 3(n + 4)$ $= n^2 + 2n + 2n + 4 - 3n - 12$	[1] Expanding brackets
	$= \; n^2 + n - 12 + 4$	[1] Grouping like terms
	$\equiv (n + 4)(n - 3) + 4$	[1] Answer as required
2(d)	$3(n + 3)(n - 1) - 3(1 - n)$	
	$= 3(n^2 + 2n - 3) - 3 + 3n$	[1] Expanding brackets
	$= 3n^2 + 9n - 12$	[1] Grouping like terms
	$\equiv (3n - 3)(n + 4)$	[1] Answer as required
3(a)	$(3n \; + \; 1)(n \; + \; 3) - \; n(3n \; + \; 7)$	
	$= 3n^2 + 9n + n + 3 \; - 3n^2 - 7n$	[1] Expanding brackets
	$= 3n + 3$	[1] Grouping like terms
	$= 3(n + 1)$	[1] Answer as required
3(b)	$(n \; + 3)^2 - (3n \; + 4)$	
	$= n^2 + 6n + 9 - 3n - 4$	[1] Expanding brackets
	$= n^2 + 3n + 5$	[1] Grouping like terms
	$= (n \; + \; 1)(n + 2) + 3$	[1] Answer as required

Turn over ►

3(c)	$(n-3)^2-(2n+1)$	
	$=n^2-6n+9-2n-1$	[1] Expanding brackets
	$=n^2-8n+8$	[1] Grouping like terms
	$=(n-4)^2-8$	[1] Answer as required
3(d)	$\frac{1}{8}(4n+1)(n+8)-\frac{1}{8}n(4n+1)$	
	$\frac{1}{8}(4n^2+n+32n+8)-\frac{1}{8}(4n^2+n)$	[1] Expanding brackets
	$\left(\frac{1}{2}n^2+\frac{33}{8}n+1\right)-(\frac{1}{2}n^2+\frac{n}{8})$	[1] Grouping like terms
	$=4n+1$	[1] Answer as required
4	$2n\times 2m=4nm$	[1] Let n and m be any integers so that 2n and 2m are both even numbers.
	$=2(2nm)$ which is even	[1] Final explanation
5	$(2n+1)(2m+1)=4nm+2n+2m+1$	[1] Let n and m be any integers so that 2n+1 and 2m+1 are both odd numbers.
	$=2(2nm+n+m)+1$ which is odd	[1] Final explanation
6	If a number is n, then the next number is $n+1$	[1] Demonstration of this logic
	The sum is therefore $n+n+1=2n+1$	[1] Correct sum
	By definition , $2n$ is even, and so $2n+1$ must be odd.	[1] Final explanation
7(a)	$7x-(2x+3)(x+2)=7x-(2x^2+4x+3x+6)$	[1] Expanding brackets
	$=7x-2x^2-7x-6=-2x^2-6$ $=-(2x^2+6)$	[1] Grouping like terms
	$(2x^2+6)$ is always positive, so multiplying by negative number means that the answer is always negative, so Tom is correct.	[1] Demonstration of this logic
7(b)	Changing the $+3$ into a -3 or $+2$ into a -2 would give a negative number when expanding the brackets but would then be made positive when multiplying by -1	[1] Correct logic used

END