Question			Answer	Marks	AO		Guidance
4			If n is even then n can be written as $2m$. $n^3+3n-1 = 8m^3 + 6m - 1$	**E1**	**2.1**	Consider when n is even	Substitute $2m$ or equiv Must include reasoning, including that $2m$ represents an even number
			$= 2(4m^3 + 3m) - 1$ For all m, $2(4m^3 + 3m)$ is even, hence $2(4m^3 + 3m) - 1$ is odd	**E1**	**2.4**	Conclude from useable form	Must be of a form where odd can be easily deduced **SR E1** for If n is even, n^3 is even, $3n$ is even, hence n^3+3n is even + even = even and therefore n^3+3n-1 is even – odd = odd Each step must be justified
			If n is odd then n can be written as $2m + 1$ $n^3+3n-1 = 8m^3 + 12m^2 + 6m + 1 + 6m + 3 - 1$ $= 8m^3 + 12m^2 + 12m + 3$	**E1**	**2.1**	Consider when n is odd	Substitute $2m + 1$ or equiv Must include reasoning, including that $2m + 1$ represents an odd number
			$= 2(4m^3 + 6m^2 + 6m) + 3$ For all m, $2(4m^3 + 6m^2 + 6m)$ is even, hence $2(4m^3 + 6m^2 + 6m) + 3$ is odd	**E1**	**2.4**	Conclude from useable form	Must be of a form where odd can be easily deduced **SR E1** for If n is odd, n^3 is odd, $3n$ is odd, hence n^3+3n is odd + odd = even and therefore n^3+3n-1 is even – odd = odd Each step must be justified
				[4]			