Question 4

Let $m^2 - 2m - 3$ be even.
Suppose m is even.
Then m = 2k for some k ∈ Z.
Now, $m^2 - 2m - 3$ = $(2k)^2 - 2(2k) - 3$
= $4k^2 - 4k - 3$
= 2x - 3 where x = $(2k^2 - 2k)$

> This implies that $m^2 - 2m - 3$ is odd because any even number subtracted by an odd number, will always result in an odd number.

Therefore, we have a contradiction, and so, m is odd.