Question 3

Suppose m is any even integer.

Hence, m = 2k for some k ∈ Z.

Thus, $m^2 + 2m + 4$ = $(2k)^2 + 2(2k) + 4$

= $4k^2 + 4k + 4$

= $2(2k^2 + 2k + 2)$

= 2x where x = $(2k^2 + 2k + 2)$

Since $m^2 + 2m + 4$ is even, therefore, the statement is true.