

8 (a) Prove that the following statement is **not** true.

$$p \text{ is a positive integer} \Rightarrow 2^p \geq p^2 \quad [1]$$

(b) Prove that the following statement is true.

$$m \text{ and } n \text{ are consecutive positive odd numbers} \Rightarrow mn + 1 \text{ is the square of an even number} \quad [4]$$