(1) Give a definition of what it means for an integer to be a square. For example 1, 4, 9, 16, 25 are squares.

**Definition:** An integer \( x \) is a square provided there is another integer \( y \) such that \( x = y \times y \).

(2) Prove the following statement. If \( x \) is an even integer then \( x + 1 \) is odd.

Suppose that \( x \in \mathbb{Z} \) is even. Then there is \( c \in \mathbb{Z} \) such that \( x = 2c \).

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\Rightarrow x + 1 = 2c + 1
\]

Thus \( x + 1 \) is odd.