Definition of Bounded Sequence

1. A sequence (a_n) is **bounded above** when there is a real number M such that $a_n \leq M$ for all n. The number M is called an **upper bound** of the sequence.

2. A sequence (a_n) is **bounded below** when there is a real number N such that $N \leq a_n$ for all n. The number N is called a **lower bound** of the sequence.

3. A sequence (a_n) is **bounded** when it is bounded above and bounded below.