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# Tutorial Sheets: 0-7

## Tutorial sheet No. 0: Revision material on Real numbers

Mark the following statements as True/False:

- (1)  $+\infty$  and  $-\infty$  are both real numbers.
  - (2) The set of all even natural numbers is bounded.
  - (3) The set  $\{x\}$  is an open interval for every  $x \in \mathbb{R}$ .
  - (4) The set  $\{2/m | m \in \mathbb{N}\}$  is bounded above.
  - (5) The set  $\{2/m | m \in \mathbb{N}\}$  is bounded below.
  - (6) Union of intervals is also an interval.
  - (7) Nonempty intersection of intervals is also an interval.
  - (8) Nonempty intersection of open intervals is also an open interval.
  - (9) Nonempty intersection of closed intervals is also a closed interval.
  - (10) Nonempty finite intersection of closed intervals is also a closed interval.
  - (11) For every  $x \in \mathbb{R}$ , there exists a rational  $r \in \mathbb{Q}$ , such that  $r > x$ .
  - (12) Between any two rational numbers there lies an irrational number.
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