

QUIZ 1 MA 107
SPRING 2019, IIT BOMBAY

(1) Prove the following:

Given subsets A and B of a set X , the following are equivalent;

[5]

(i) $A = A \cap B$

(ii) $B = A \cup B$

(2) Prove or disprove: $\bigcup_{n \in \mathbb{Z}} (n-1, n) = \mathbb{R}$

[3]

(3) Let $x, y \in \mathbb{R}$ $x \geq y$, If $\forall n \in \mathbb{N} (x - y \leq 1/n)$, then show that $x = y$.

[4]

(4) Prove or disprove: For $A = [0, 1]$, $\text{lub}(A) = 1$.

[3]