

Main.pdf 41 / 385 125%

(a) $\bigcup_{i \in \mathbb{N}} A_i =$ (b) $\bigcap_{i \in \mathbb{N}} A_i =$

2. Suppose $\begin{cases} A_1 = \{0, 2, 4, 8, 10, 12, 14, 16, 18, 20, 22, 24\} \\ A_2 = \{0, 3, 6, 9, 12, 15, 18, 21, 24\} \\ A_3 = \{0, 4, 8, 12, 16, 20, 24\} \end{cases}$

(a) $\bigcup_{i \in \mathbb{N}} A_i =$ (b) $\bigcap_{i \in \mathbb{N}} A_i =$

3. For each $n \in \mathbb{N}$, let $A_n = \{0, 1, 2, 3, \dots, n\}$.

(a) $\bigcup_{i \in \mathbb{N}} A_i =$ (b) $\bigcap_{i \in \mathbb{N}} A_i =$

4. For each $n \in \mathbb{N}$, let $A_n = \{-2n, 0, 2n\}$.

(a) $\bigcup_{i \in \mathbb{N}} A_i =$ (b) $\bigcap_{i \in \mathbb{N}} A_i =$

5. (a) $\bigcup_{i \in \mathbb{N}} [i, i+1) =$ (b) $\bigcap_{i \in \mathbb{N}} [i, i+1) =$

6. (a) $\bigcup_{i \in \mathbb{N}} [0, i+1) =$ (b) $\bigcap_{i \in \mathbb{N}} [0, i+1) =$

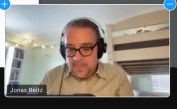
7. (a) $\bigcup_{i \in \mathbb{N}} \mathbb{R} \times (i, i+1) =$ (b) $\bigcap_{i \in \mathbb{N}} \mathbb{R} \times (i, i+1) =$

8. (a) $\bigcup_{x \in \mathbb{R}} [x, x+1) =$ (b) $\bigcap_{x \in \mathbb{R}} [x, x+1) =$

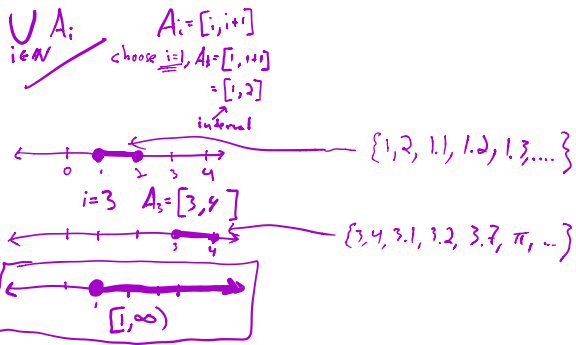
9. (a) $\bigcup_{x \in \mathbb{R}} [x, x+1) =$ (b) $\bigcap_{x \in \mathbb{R}} [x, x+1) =$

10. (a) $\bigcup_{x \in \mathbb{R}} [x, x+1) =$ (b) $\bigcap_{x \in \mathbb{R}} [x, x+1) =$

11. Is $\bigcap_{i \in \mathbb{N}} A_i \subseteq \bigcup_{i \in \mathbb{N}} A_i$ always true for any collection of sets A_i with index set I ?

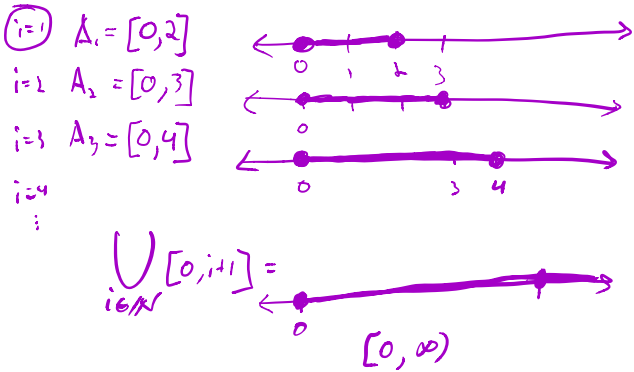


5. (a) $\bigcup_{i \in \mathbb{N}} [i, i+1)$ (b) $\bigcap_{i \in \mathbb{N}} [i, i+1)$



$\bigcap_{i \in \mathbb{N}} [i, i+1) = \emptyset$

6. (a) $\bigcup_{i \in \mathbb{N}} [0, i+1) =$ (b) $\bigcap_{i \in \mathbb{N}} [0, i+1) =$



(b) $\bigcap_{i \in \mathbb{N}} [0, i+1) = \{0, 1, 2, 1.5, \dots\} = [0, 2)$