

Solution to Problem 18

Problem. Suppose that A, B are r.e. sets. If a number n appears in the A -generating algorithm at moment 3, when will this number appear in the algorithm generating all elements of the union $A \cup B$?

Solution. According to the posted lecture, if the A -generating algorithm generates a number at moment k , then the union-generating algorithm generates this number at moment $2k - 1$.

In this problem, $k = 3$, so the union-generating algorithm generates the number n at moment $2 \cdot 3 - 1 = 5$.