The Theory of Computation
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Solution Manual
Chapter 5, Problem 5.21

If an infinite r.e. set has an increasing enumerating function, we can decide membership of an arbitrary string x in the set by enumerating the strings until one of two things happen: (i) x appears in the enumeration, in which case we can state that x belongs to the set; or (ii) the last string enumerated exceeds x in the ordering, in which case we can state that x does not belong to the set (because it can no longer appear in the enumeration, since that would cause a decrease). Since one of the two must happen eventually, we have correctly decided membership and the set is recursive.

If a set is recursive, then we can enumerate it in an increasing manner by the simple device of enumerating (internally) all possible strings in increasing order and deciding for each string as it is enumerated whether or not it belongs to the set; if it does, we print it.