Assignment #4; Due February 13 at start of class

Choosing from among (REC) recursive, (RE) re non-recursive, (coRE) co-re non-recursive, (NRNC) non-re/non-co-re, categorize each of the sets in a) through d). Justify your answer by showing some minimal quantification of some known recursive predicate.

a.) \( \{ f \mid \text{domain}(f) \text{ is infinite} \} \)

Justification:

b.) \( \{ f \mid |\text{range}(f)| = 1 \} \)

Justification:

c.) \( \{ <f,x> \mid f(x) \text{ converges in at most } 2^x+1 \text{ steps} \} \)

Justification:

d.) \( \{ f \mid \text{domain}(f) \text{ converges in at most } 2^x+1 \text{ steps for all input } x \} \)

Justification: