

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

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**Justification:**

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

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**Justification:**

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

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**Justification:**

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

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**Justification:**