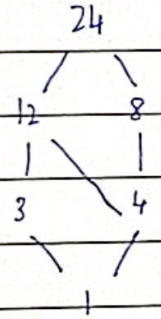
NO:..... DATE:.....

1) E is reflexive.
E is not transitive, because $f E h$ and $h E i$ but $f \not E i$.
E is not symmetric, because $b E c$ but $c \not E b$.
E is antisymmetric.

2) R is reflexive, $a \leq a$ for all $a \in P(A) - \{\emptyset\}$.
R is not symmetric, $\max\{1\} \leq \min\{2\}$ but $\max\{2\} \not\leq \min\{1\}$, so $1 R 2$ but $2 \not R 1$.
R is not antisymmetric, $\max\{1,2,3\} \leq \min\{3\}$ and $\min\{3\} \leq \max\{1,2,3\}$ but $\{3\} \neq \{1,2,3\}$, so $\{1,2,3\} R \{3\}$ and $\{3\} R \{1,2,3\}$ but $\{3\} \neq \{1,2,3\}$.
R is transitive, if $\max(a) \leq \min(b)$ and $\max(b) \leq \min(c)$, then $\max(a) \leq \min(c)$ for all $a, b, c \in P(A) - \{\emptyset\}$.

3) $\{\dots, -8, -4, 0, 4, 8, \dots\}$, $\{\dots, -7, -3, 1, 5, 9\}$, $\{\dots, -6, -2, 2, 6, 10, \dots\}$, $\{\dots, -5, -1, 3, 7, 11, \dots\}$
∴ There are 4 classes as I start from different numbers, which is 0, 1, 2, 3, and start increasing / decreasing by 4 for each of the numbers.

4a)



b) 2

c) 78

d) g

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