Let $A$ be the set $\{1, 2, 3\}$, and let

$$P(A) = \{ B \mid B \subseteq A \}.$$ 

(the power set of $A$ or the set of subsets of $A$.)

**Question 1.** Prove that the relation $R_1$ on $P(A)$ defined by $(B, C) \in R_1$ if and only if $B \subseteq C$ is transitive and reflexive. Give an example showing that it is not symmetric.

**Question 2.** Let $R_2$ be the relation on $P(A)$ defined by $(B, C) \in R_2$ if and only if $|B| = |C|$. Prove that $R_2$ is an equivalence relation. Write down the equivalence classes of $R_2$. 

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