MCS Tutorial 6: Relations

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Relations

1. Consider a relation R on the set $\mathbb{Z}^+$ defined as

$$R = \{(x, y) | x + y \text{ is even}\}$$

Show whether R is reflexive, symmetric, antisymmetric and/or transitive.

2. Let R and S be the following relations:
   - R={(1,1), (1,2),(2,4),(3,2),(4,3)}
   - S={(1,0),(2,4),(3,1),(3,2),(4,1)}

   What is the composite of the relations R and S, $S \circ R$?

3. Let R={(1,1), (2,4), (3,4),(4,2)}. Find the powers R^2, R^3, R^4,…

Try at home:-

$$R = \{(x, y): x + y \text{ is odd}\}$$