

Assignment 3

- (1) Prove or disprove
 - (a) If R is reflexive then the symmetric closure of R is reflexive.
 - (b) If R is transitive then the reflexive closure of R is transitive.
- (2) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be the function defined by $f(x) = \lfloor x/3 \rfloor$. Let S be the relation on the set of real numbers defined by $(x, y) \in S$ if and only if $f(x) = f(y)$. Notice f is an equivalence relation (prove it to yourself). Describe all the equivalence classes of S . Check your answer satisfies the conditions of the definition of a partition (see definition 3.4.1 in Equivalence Relations).
- (3) Section 8.6 p. 578ff
 - (a) # 10
 - (b) # 32
 - (c) # 64