HOMEWORK 9

MATH 2001

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ABSTRACT. This is the first homework assignment. The problems are from Hammack [**?**, Ch. 11, §11.1]:

- **Chapter 11 Section 11.1**, Exercises: 2, 6, 10.

CONTENTS

CHAPTER 11 SECTION 11.1

Ch.11, §11.1, Exercise 2. Consider the relation $R = \{(a,b),(a,c),(c,b),(b,c)\}$ on set $A = \{a,b,c\}$. Is R reflexive? Symmetric? Transitive? If a property does not hold, say why.

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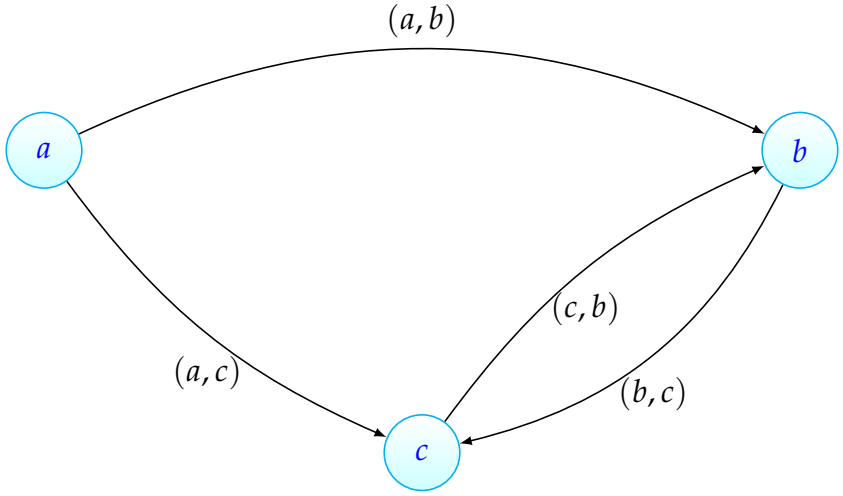
Solution to Ch.11, §11.1, Exercise 2.



1. The graph is not reflexive, because $(a, a) \notin R$.
2. The graph is not Symmetric, because $(a, b) \in R$ *and* $(b, a) \notin R$.

The Graph is trasitive.

□

Ch.11, §11.1, Exercise 6. Consider the relation $R = \{(x, x) : x \in \mathbb{Z}\}$ on $\mathbb{Z}$. Is R reflexive? Symmetric? Transitive? If Property does not hold, say why.

Solution to Ch.11, §11.1, Exercise 6.

The Graph is reflexive. There is no path that could prove it is transitive or symmetric. □

Ch.1, §1.1, Exercise 18. Write the following set in set-builder notation:

$$\{0, 4, 16, 36, 64, 100, \dots\}$$

Solution to Ch.1, §1.1, Exercise 18. □

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