Relation Homework

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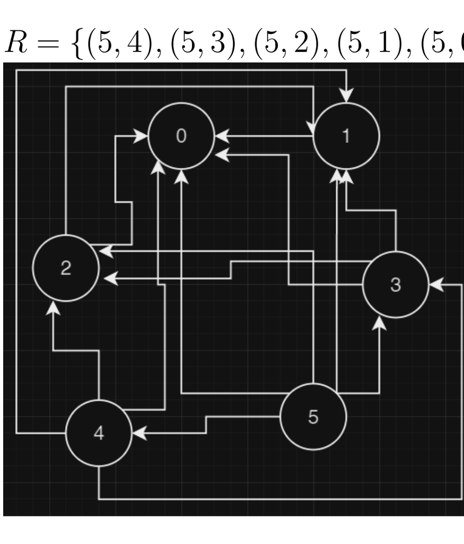
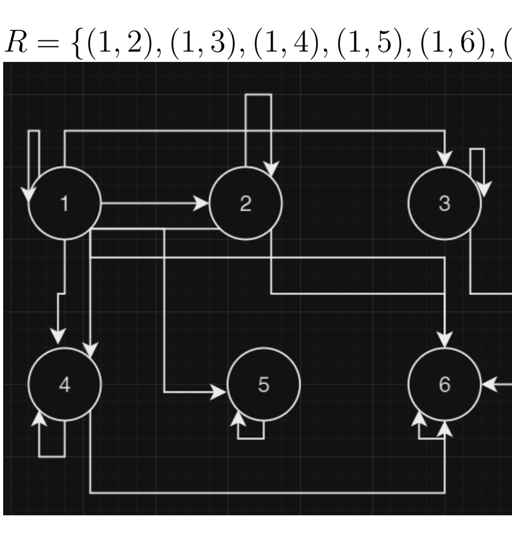
Exercises for Section 16.1

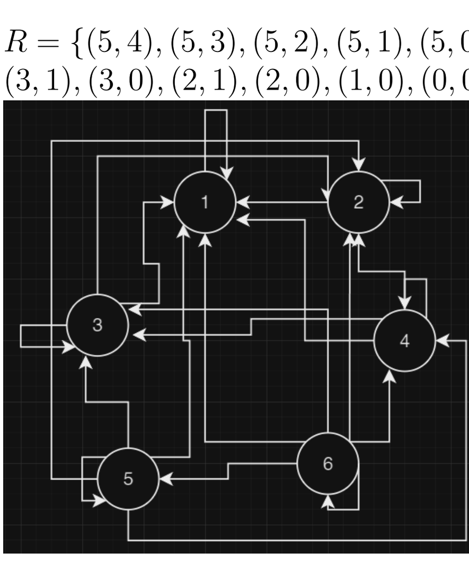
1. $R = \{(5,4),(5,3),(5,2),(5,1),(5,0),(4,3),(4,2),(4,1),(4,0),(3,2),(3,1),(3,0),(2,1),(2,0),(1,0)\}$



2. $R = \{(1,2),(1,3),(1,4),(1,5),(1,6),(1,1),(2,2),(2,4),(2,6),(3,3),(3,6),(4,4),(4,6),(5,5),(6,6)\}$



3. $R = \{(5,4),(5,3),(5,2),(5,1),(5,0),(4,3),(4,2),(4,1),(4,0),(3,2),$
$(3,1),(3,0),(2,1),(2,0),(1,0),(0,0),(1,1),(2,2),(3,3),(4,4),(5,5)\}$



4. $A = \{0,1,2,3,4,5\}$,
$B = \{(0,0),(0,4),(1,1),(1,3),(2,2),(2,4),(3,3),(3,1),(4,4),(4,0),(4,2),(5,5),(5,1)\}$

5. $A = \{0,1,2,3,4,5\}$, $B = \{(1,2),(2,5),(3,3),(4,3),(4,2),(5,0)\}$

9 $= 2^{36}$

11 $= 2^{|A|x|A|}$

Exercises for Section 16.2

1. it is reflexive, symmetric and transitive.

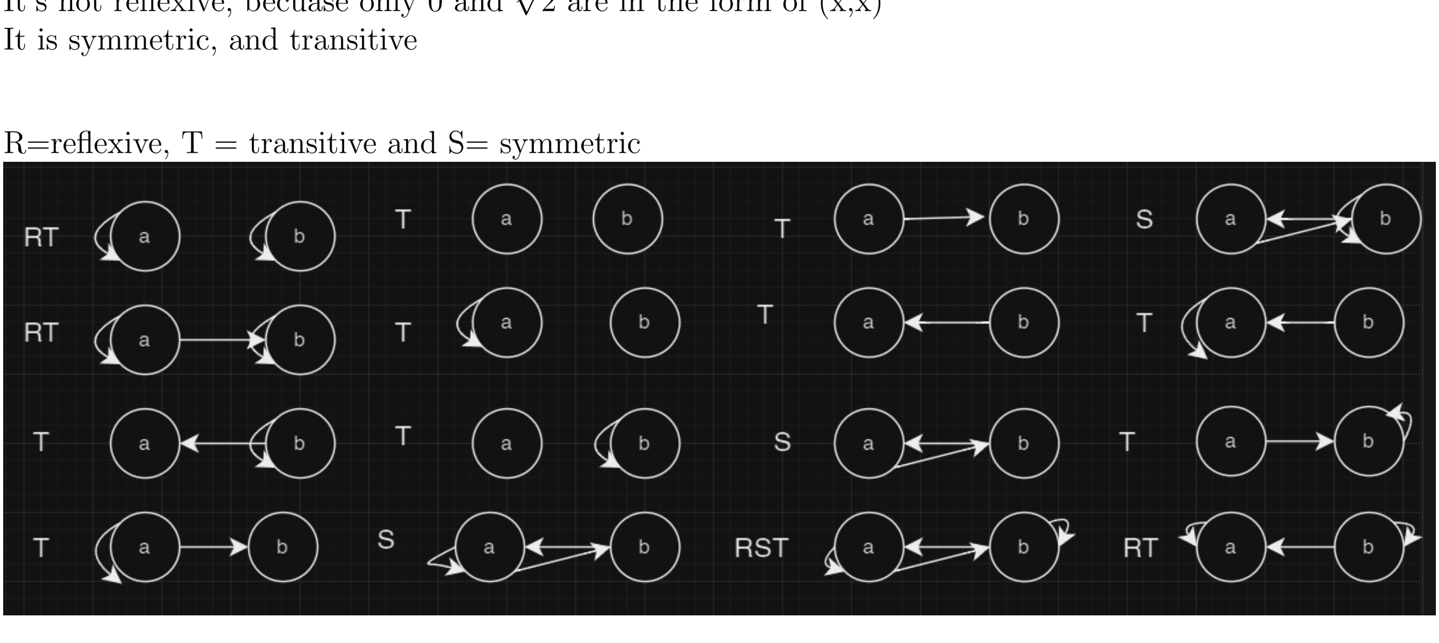
2. It's not reflexive, becuase (a,a) is missing.
It's not symmetric, becuase $(b,a),(c,a)$ is missing.
It is transitive

3. It's not reflexive, becuase $(a,a),(b,b),(c,c)$ is missing.
It's not symmetric, becuase $(b,a),(c,a)$ is missing.
It's not transitive, becuase $(b,b),(c,c)$ is missing.

4. it is reflexive, symmetric and transitive.

5. It's not reflexive, becuase only 0 and $\sqrt{2}$ are in the form of (x,x)
It is symmetric, and transitive

7 R=reflexive, T = transitive and S= symmetric



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Exercises for Section 16.3

1.

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Exercises for Section 16.4

1.

2.

3.

5

Exercises for Section 16.5

1.

3

4

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