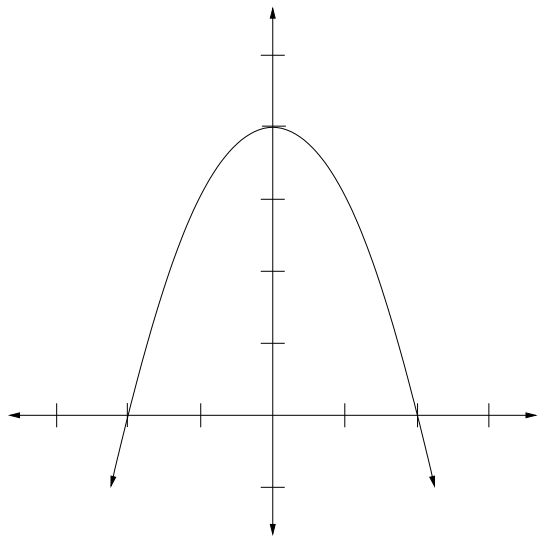


Chapter 5 roadmap:

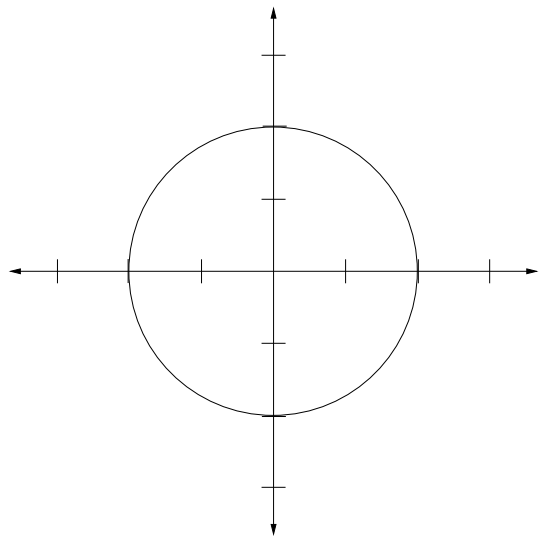
- ▶ Introduction to relations (**Today**)
- ▶ Properties of relations (Wednesday and Friday)
- ▶ Transitive closure (after-break Monday)
- ▶ Partial order relations (after-break Wednesday)
- ▶ Review for Test 2 (after-break Friday)

Today: Introduction relations

- ▶ Definition
- ▶ Examples
- ▶ Other terms
 - ▶ Image
 - ▶ Inverse
 - ▶ Composition
- ▶ Code representation
- ▶ Proofs



$$y = 4 - x^2$$



$$y^2 = 4 - x^2$$

Consider the set of students {Alice, Bob, Carol, Dave}. Suppose they all sit in the front row, with this seating arrangement:

Dave	Alice	Carol	Bob
------	-------	-------	-----

Consider the relation *sitsNextTo* on this set. Determine which of the following are true.

$Carol \in \textit{sitsNextTo}$

$(Dave, Alice) \in \textit{sitsNextTo}$

$(Dave, Bob) \in \textit{sitsNextTo}$

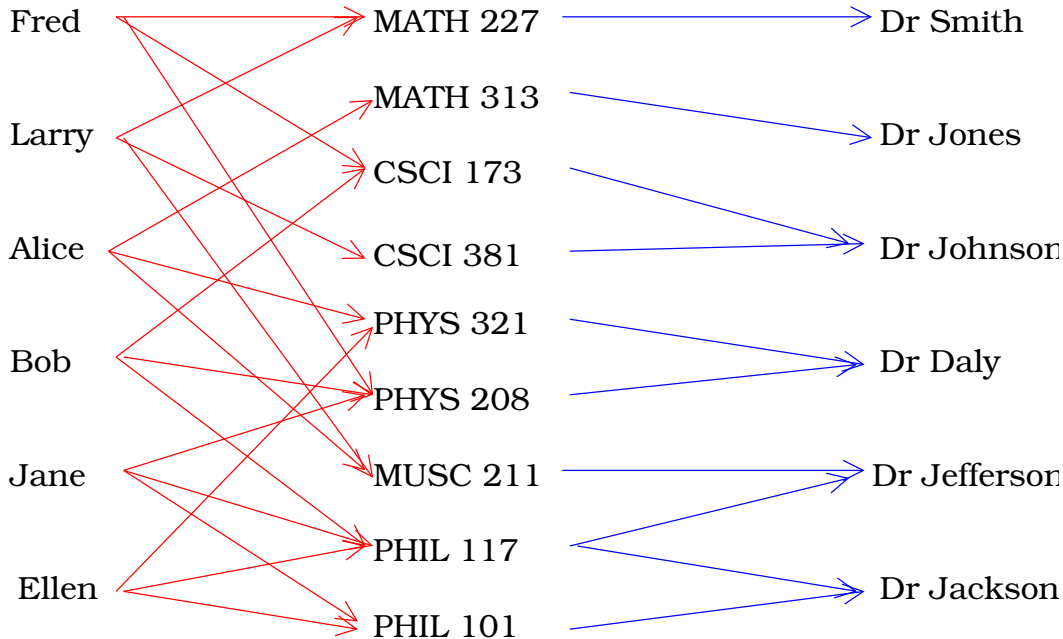
$(Alice, Carol) \in \textit{sitsNextTo}$

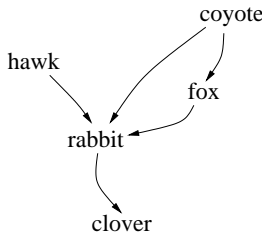
$\textit{sitsNextTo} = \{Dave, Alice, Carol, Bob\}$

$\textit{sitsNextTo} =$

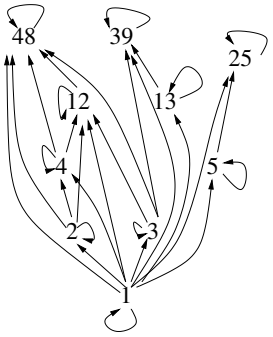
$\{(Alice, Carol), (Alice, Dave), (Bob, Carol), (Carol, Alice), (Carol, Bob), (Dave, Alice)\}$

$\textit{sitsNextTo} = \{(Dave, Alice), (Alice, Carol), (Carol, Bob)\}$.

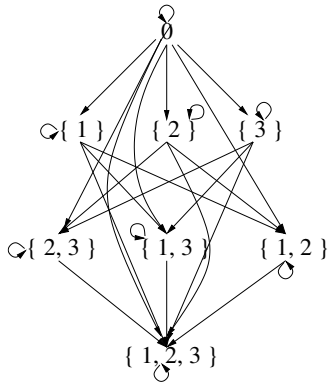




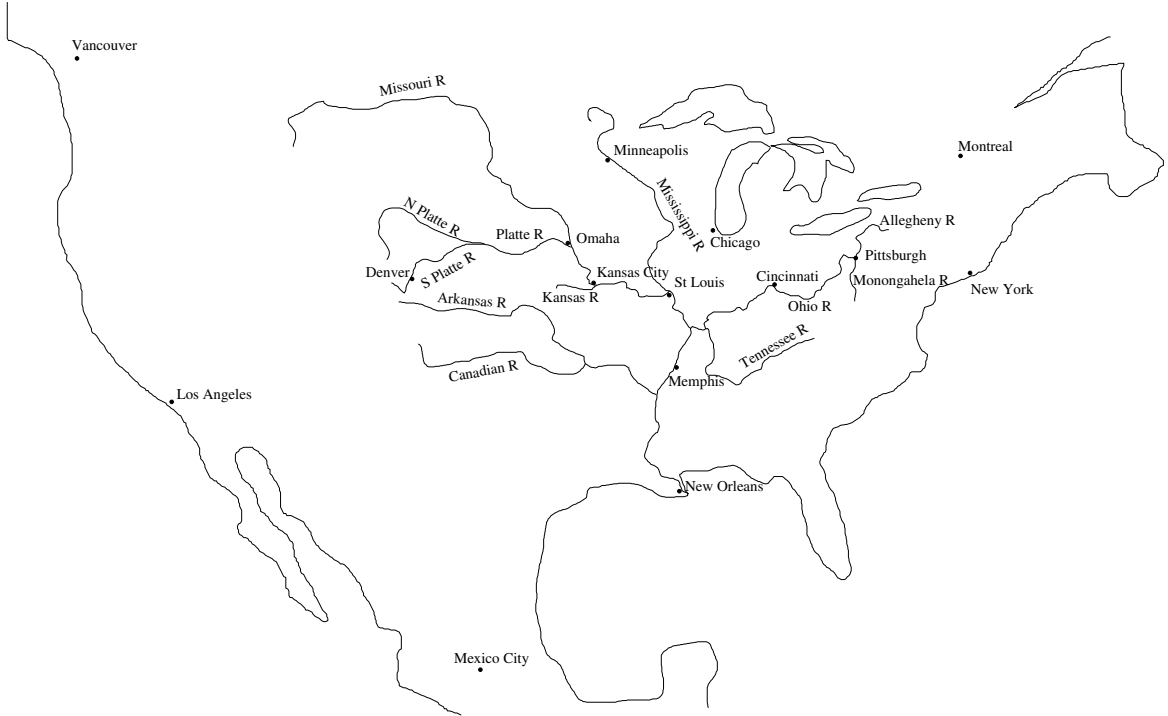
eats

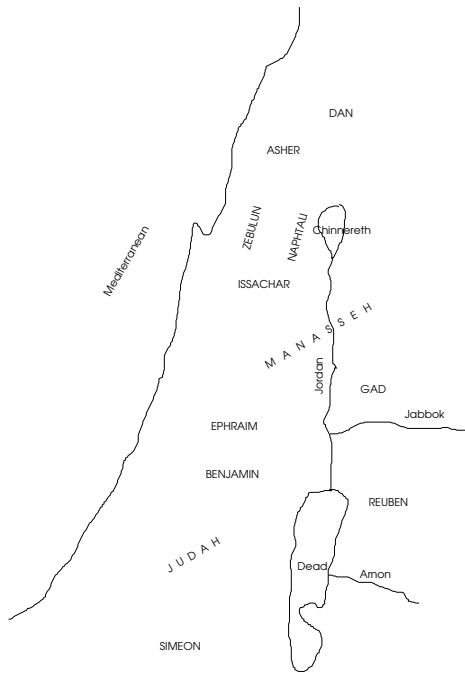


| (divides)



⊆ (subset)





Chapter 5 roadmap:

- ▶ Introduction to relations (**Today**)
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For next time:

Pg 205: 5.3.(8, 10, 12, 13)

Read 5.4