

# Lecture 20, class activity. Relations and functions.

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For each of the following, you are given sets  $A, B$  and a function  $f: A \rightarrow B$ .

1. In each case, think of the function as a relation  $f \subset A \times B$  and
    - (a) list all of the elements of the relation;
    - (b) draw a graph of the relation
  2. Then do both for the relation  $f^*$ ;
  3. Then determine if  $f^*$  represents a function.
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A.  $A = B = \{1, 2, 3\}$ ,  $f(x) = x$ .

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B.  $A = B = \{1, 2, 3\}$ ,  $f(x) = 4 - x$ .

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C.  $A = \{1, 2, 3\}$ ,  $B = \{1, 2, 3, 4\}$ ,  $f(x) = x$ .

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D.  $A = \{1, 2, 3, 4\}$ ,  $B = \{1, 2, 3\}$ ,  $f(1) = f(2) = 1, f(3) = f(4) = 2$ .