

## Problem 4

A coin is tossed twice. Let  $S$  be the set of all possible pairs that can be observed, i.e.,  $S = \{H, T\} \times \{H, T\} = \{(H, H), (H, T), (T, H), (T, T)\}$ . Write the following sets by listing their elements.

- a.  $A$ : The first coin toss results in head.
  - b.  $B$ : At least one tail is observed.
  - c.  $C$ : The two coin tosses result in different outcomes.
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## Solution

Each set consists of the elements in the universal set that have the desired properties.

- a.  $A = \{(H, H), (H, T)\}$
- b.  $B = \{(H, T), (T, H), (T, T)\}$
- c.  $C = \{(H, T), (T, H)\}$