BASIC CLAIMS AND EXERCISES ABOUT RELATIONS ACCOMPANYING HANDOUT 12 – 2010 - 1

Claim 12 -2: Definition 12-8 and alternate Definition 12-8 are logically equivalent.
Homework: prove or disprove the claim.

Exercise 12-1: Let U_1 and U_2 be well defined universes where $U_1 = \mathbb{N}_5$ and $U_2 = \mathbb{R}$.

Let $A \subseteq U_1$ and $B \subseteq U_2$ such that $A = U_1$ and $B = [0, \pi]$
Let $R \subseteq A \times B$ where $R = \{ (x, y) \mid y = x\}$

A. Find R (which is called, of course, a *relation* from A to B).
B. Find dom(R) C. Find cod(R) D. Find ran(R) E. Find cor(R)

Exercise 12-2: Let U_1 and U_2 be well defined universes where $U_1 = \mathbb{N}_5$ and $U_2 = \mathbb{R}$.

Let $A \subseteq U_1$ and $B \subseteq U_2$ such that $A = U_1$ and $B = [-\pi, \pi]$
Let $R \subseteq A \times B$ where $R = \{ (x, y) : y = | x |\}$

A. Find R B. Find dom(R) C. Find cod(R) D. Find ran(R) E. Find cor(R)

Exercise 12-3: Let U_1 and U_2 be well defined universes where $U_1 = \mathbb{N}_5$ and $U_2 = \mathbb{R}$.

Let $A \subseteq U_1$ and $B \subseteq U_2$ such that $A = U_1$ and $B = [-\pi, \pi]$
Let $R \subseteq A \times B$ where $R = \{ (x, y) : x = | y |\}$

A. Find R B. Find dom(R) C. Find cod(R) D. Find ran(R) E. Find cor(R)

Exercise 12-4: Let U be a well defined universes where $U = \mathbb{N}_5$.

Let A and B be subsets of U such that A and B are U.
Let $R \subseteq A \times B$ where $R = \{ (x, y) : x < y \}$

A. Find R B. Find dom(R) C. Find cod(R) D. Find ran(R) E. Find cor(R)

Exercise 12-5: Let U be a well defined universes where $U = \mathbb{N}_5$.

Let A and B be subsets of U such that A and B are U.
Let $R \subseteq A \times B$ where $R = \{ (x, y) : x \geq y \}$

A. Find R B. Find dom(R) C. Find cod(R) D. Find ran(R) E. Find cor(R)