

Homework 21, Section 4.5: 2, 6, 11, 14

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Homework

2. A)

R_1 is symmetric

2. B)

R_2 is symmetric

2. C)

R_3 is not symmetric

6.

$\{\{ACBD, CBDA, BDAC, DACB\}, \{ADBC, DBCA, BCAD, CADB\}, \{ABCD, BCDA, CDAB, DABC\}, \{ADCB, DCBA, CBAD, BADC\}, \{ABDC, BDCA, DCAB, CABD\}, \{ACDB, CDBA, DBAC, BACD\}\}$

11. A)

Let $a \in \mathbb{Z}$ since $a - a = 0$ and a is divisible by n , $(a, a) \in R$. This means R is reflexive.

11. B)

Let $a, b \in \mathbb{Z}$ so that $(a, b) \in R$. Since $a - b$ is divisible by n , which in turn means that $a - b = kn$ and $b - a = -kn$. Since $-k$ is an integer it means that $b - a$ is divisible by n , which means that R is symmetric.

11. C)

11. D)

14. A)

$\{(1,1), (2,2), (3,3), (3,2), (1,3), (1,2)\}$

14. B)

$\{(1,1), (2,2), (3,3), (3,2), (1,3), (3,1), (2,3)\}$

14. C)

$\{(1,1),(1,2),(2,1),(2,2)\}$