Assignment_06

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4.

	Reflexive	Symmetric	Anti-symmtric	Transitive
(a)	No	No	Yes	Yes
(b)	Yes	Tes	No	Yes
(c)	Yes	Yes	No	Yes
(d)	Yes	Yes	No	No

12.

(a)

32.

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

34.

a)

$$R_1 \cup R_3 = ig\{(a,b) \in \mathbb{R}^2 \mid (a>b) ee (a < b)ig\} = ig\{(a,b) \in \mathbb{R}^2 \mid a
eq big\}$$

b)

$$R_1 \cup R_5 = ig\{(a,b) \in \mathbb{R}^2 \mid (a>b) ee (a=b)ig\} = ig\{(a,b) \in \mathbb{R}^2 \mid a \geq big\}$$

c)

$$R_2\cap R_4=ig\{(a,b)\in\mathbb{R}^2\mid (a\leq b)\wedge (a\geq b)ig\}=ig\{(a,b)\in\mathbb{R}^2\mid a=big\}$$

d)

$$R_3 \cap R_5 = ig\{(a,b) \in \mathbb{R}^2 \mid (a < b) \wedge (a = b)ig\} = \emptyset$$

e)

$$R_1 - R_2 = ig\{(a,b) \in \mathbb{R}^2 \mid (a>b) \land \lnot (a \geq b)ig\} = ig\{(a,b) \in R \mid (a>b) \land (a < b)\} = \emptyset$$

f)

$$egin{aligned} R_2 - R_1 &= \{(a,b) \in R \mid (a \geq b) \land \lnot(a > b)\} = \ ig\{(a,b) \in \mathbb{R}^2 \mid (a \geq b) \land (a \leq b)ig\} = ig\{(a,b) \in \mathbb{R}^2 \mid a = big\} \end{aligned}$$

g)

$$egin{aligned} R_1 \oplus R_3 &= (R_1 \cup R_3) - (R_1 \cap R_3) = \ \{(a,b) \in \mathbb{R} \mid ((a>b) ee (a < b)) \wedge
egin{aligned} \neg ((a>b) \wedge (a < b >)) \} &= \ \{(a,b) \in \mathbb{R} \mid a
eq b \} \end{aligned}$$

h)

$$egin{aligned} R_2 \oplus R_4 &= ig\{(a,b) \in \mathbb{R}^2 \mid (R_2 \cup R_4) \wedge
eg (R_2 \cap R_4) ig\} &= ig\{(a,b) \in \mathbb{R}^2 \mid a
eq b ig\} \end{aligned}$$