

Ex 1

Reflexivă $\rightarrow a R a, \forall a \in S$

Simetriă $\rightarrow a R b \rightarrow b R a, \forall a, b \in S$

Antisim. $\rightarrow a R b, b R a \rightarrow a = b, \forall a, b \in S$

Transitivă $\rightarrow a R b, b R c \rightarrow a R c, \forall a, b, c \in S$

- Este fratele lui \rightarrow Reflexivă \times
 \rightarrow Simetrică \checkmark
 \rightarrow Antisim. \times
 \rightarrow Transitivă \checkmark

- $R = \{ \langle x, y \rangle \mid x^2 = y^2, x, y \in \mathbb{R} \}$
 \rightarrow Reflexivă \checkmark ($2^2 = 2^2$)
Simetrică \checkmark ($2^2 = (-2)^2$)
Antisim. \times $2 \neq -2$
Transitivă \checkmark $2^2 = (-2)^2 = 2^2$

$$\bullet R = \{ \langle x, y \rangle \mid x \% y = 0, x \in \{1, 2, 3, 4\} \}$$

$$\rightarrow \text{Reflexivă} \quad x \% x = 0 \quad \checkmark$$

$$\rightarrow \text{Simetrică} \quad x \% y \neq y \% x \quad (4 \% 2 \neq 2 \% 4) \quad \times$$

$$\rightarrow \text{Antisimetrică} \quad \checkmark$$

$$\rightarrow \text{Transitivă} \quad \checkmark$$

$$x \in \{1, 2, 3, 4\} \quad \% y = r \in \{0, 1, 2, 3, 4\}$$

$$x \% y = 0 \wedge y \% z = 0 \Rightarrow x \% z = 0 \quad \checkmark$$

$$x = m \cdot y \quad \rightarrow \quad x = m \cdot n \cdot z \quad \checkmark$$

$$y = n \cdot z$$

$$m, n \in \mathbb{N}$$

nu este rel. de echiv.

Ex 2

$$\bullet a \equiv b \iff a+b \text{ par}$$

$$a, b \in \mathbb{Z}$$

$$\exists a, b \text{ par a?} \quad a \neq b \wedge a+b \text{ par}$$

$$\bullet a \equiv b \iff a+b \text{ impar}$$

$$a, b \in \mathbb{Z}$$

nu este rel. echivalentă

$$a \equiv b \iff a - b \in \mathbb{Z}$$

$$a, b \in \mathbb{Q}$$

$$\exists a, b \text{ a.i.} \quad \frac{1}{2} - \left(-\frac{1}{2}\right) = 0$$

nu este rel. echivalenta

$$\frac{1}{2} \neq -\frac{1}{2}$$

$$0 \in \mathbb{Z}$$