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- a) not asymmetric because both $(2,3)$ and $(3,2)$ are present
- b) not asymmetric because both $(1,2)$ and $(2,1)$ are present
- c) not asymmetric because both $(2,4)$ and $(4,2)$ are present
- d) asymmetric, because for any $(a,b) \in R$, $(b,a) \notin R$
- e) not asymmetric, because only (a,a) are present, matrix is symmetric
- f) not asymmetric, because both $(1,3)$ and $(3,1)$ are present

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$$R = \{ (a,b) \mid a \mid b \} \text{ on } \mathbb{Z}$$

$$R^{-1} = \{ (a,b) \mid \begin{array}{l} b \text{ divides } a \\ \text{or} \\ a \text{ is a multiple of } b \end{array} \}$$

$$\bar{R} = \{ (a,b) \mid a \nmid b \}$$

$$\begin{array}{r} 2 \mid 4 \\ 3 \mid 27 \\ 1 \mid 1 \end{array}$$