

→  $A = \{a, b, c\}$   
 $\emptyset \times A = ?$  ~~A~~  ~~$\emptyset$~~   
 why?

$$\{2\} \times \{a, b, c\}$$

$\begin{pmatrix} - \\ a \end{pmatrix}$   
~~X~~

$\{ \}$

$$\begin{aligned} \rightarrow |\emptyset \times A| &= |\emptyset| \cdot |A| \\ &= 0 \cdot 3 \\ &= 0 \end{aligned}$$

Axiom

→ since <sup>only</sup>  $|\emptyset| = 0$ , then  $\emptyset \times A = \emptyset$

→  $\{\emptyset\} \times \{0, \emptyset\} \times \{0, 1\} = R$   ~~$\emptyset$~~

$$|\{\emptyset\}| = 1 \quad |\{0, \emptyset\}| = 2 \quad |\{0, 1\}| = 2 \quad \Rightarrow |R| = 1 \cdot 2 \cdot 2 = 4$$

$$R = \{(\emptyset, 0, 0), (\emptyset, 0, 1), (\emptyset, \emptyset, 0), (\emptyset, \emptyset, 1)\}$$

## HOMEWORK 12:

→ 9, 15, 13, 16, 11, 17, 18, 14

→ read subsets