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Questão

1) a) $A \times B = \{(2, 4), (2, 5), (3, 4), (3, 5)\}$

b) $B \times A = \{(4, 2), (4, 3), (5, 2), (5, 3)\}$

c) $A^2 = \{(2, 2), (2, 3), (3, 2), (3, 3)\}$

d) $A^3 = \{(2, 2, 2), (2, 2, 3), (2, 3, 2), (2, 3, 3), (3, 2, 2), (3, 2, 3), (3, 3, 2), (3, 3, 3)\}$

Questão

2) a) $A = \{2, 3, 4, 5, 6, 7, \dots\}$

b) $B = \{3, 4, 5\}$

Questão

3) a) $S = \{\emptyset, \{1\}, \{2\}, \{3\}, \{4\}, \{1, 2\}, \{1, 3\}, \{1, 4\}, \{2, 3\}, \{2, 4\}, \{3, 4\}, \{1, 2, 3\}, \{1, 2, 4\}, \{1, 3, 4\}, \{2, 3, 4\}, \{1, 2, 3, 4\}\}$

16 conjuntos

b) $S = \{\emptyset, a, \{a, \{\}\}\}$

3 conjuntos

Questão

4) a) $A \times B = \{(2, 1), (2, 3), (2, 5), (2, 7), (2, 9), (4, 1), (4, 3), (4, 5), (4, 7), (4, 9), (6, 1), (6, 3), (6, 5), (6, 7), (6, 9), (8, 1), (8, 3), (8, 5), (8, 7), (8, 9), (10, 1), (10, 3), (10, 5), (10, 7), (10, 9)\}$

b) $X = \{\}$

c) $Y = \{(2, 3), (4, 5), (6, 7), (8, 9)\}$

d) $W = \{(2, 1), (6, 3), (5, 10)\}$

Questão

5) Como são: aperitivos "e" saladas "e" entradas "e" bebidas, irá se multiplicar todos os diferentes pratos disponíveis para formar um jantar. Assim, teremos 180 jantares diferentes possíveis.

ESTRUTURA

6) Como são: salto "e" acompanhado "e" caldo, irá se multiplicar todas as opções disponíveis para formar uma sobremesa. Assim, teremos 30 sobremesas diferentes possíveis.

$\{(2,2), (4,2), (2,4), (4,4)\} = 4 \times 4 = 16$
 $\{(2,2), (5,2), (2,5), (4,5), (5,4)\} = 5 \times 4 = 20$
 $\{(2,2), (2,5), (5,2), (6,2), (2,6)\} = 5 \times 4 = 20$
 $\{(2,2,2), (2,2,5), (2,5,2), (5,2,2), (2,5,5), (5,2,5), (5,5,2), (5,5,5)\} = 8 \times 4 = 32$

$\{(2,2,2,2), (2,2,2,5), (2,2,5,2), (2,5,2,2), (2,5,5,2), (2,5,2,5), (5,2,2,2), (5,2,2,5), (5,2,5,2), (5,5,2,2), (5,5,2,5), (5,5,5,2), (5,5,2,5), (5,5,5,5)\} = 12 \times 4 = 48$
 $\{(2,2,2,2,2), (2,2,2,2,5), (2,2,2,5,2), (2,2,5,2,2), (2,5,2,2,2), (2,5,2,2,5), (2,5,5,2,2), (2,5,2,5,2), (5,2,2,2,2), (5,2,2,2,5), (5,2,5,2,2), (5,5,2,2,2), (5,5,2,2,5), (5,5,5,2,2), (5,5,2,5,2), (5,5,5,5,2)\} = 16 \times 4 = 64$

$\{(2,2,2,2,2,2), (2,2,2,2,2,5), (2,2,2,2,5,2), (2,2,2,5,2,2), (2,2,5,2,2,2), (2,2,5,2,2,5), (2,2,5,5,2,2), (2,2,5,2,5,2), (2,5,2,2,2,2), (2,5,2,2,2,5), (2,5,2,5,2,2), (2,5,5,2,2,2), (2,5,5,2,2,5), (2,5,5,5,2,2), (2,5,5,2,5,2), (5,2,2,2,2,2), (5,2,2,2,2,5), (5,2,5,2,2,2), (5,5,2,2,2,2), (5,5,2,2,2,5), (5,5,5,2,2,2), (5,5,5,2,2,5), (5,5,5,5,2,2), (5,5,5,2,5,2), (5,5,5,5,5,2)\} = 20 \times 4 = 80$

$\{(2,2,2,2,2,2,2), (2,2,2,2,2,2,5), (2,2,2,2,2,5,2), (2,2,2,2,5,2,2), (2,2,2,5,2,2,2), (2,2,2,5,2,2,5), (2,2,2,5,5,2,2), (2,2,2,5,2,5,2), (2,2,5,2,2,2,2), (2,2,5,2,2,2,5), (2,2,5,2,5,2,2), (2,2,5,5,2,2,2), (2,2,5,5,2,2,5), (2,2,5,5,5,2,2), (2,2,5,5,2,5,2), (2,5,2,2,2,2,2), (2,5,2,2,2,2,5), (2,5,2,5,2,2,2), (2,5,5,2,2,2,2), (2,5,5,2,2,2,5), (2,5,5,5,2,2,2), (2,5,5,5,2,2,5), (2,5,5,5,5,2,2), (2,5,5,5,2,5,2), (5,2,2,2,2,2,2), (5,2,2,2,2,2,5), (5,2,5,2,2,2,2), (5,5,2,2,2,2,2), (5,5,2,2,2,2,5), (5,5,5,2,2,2,2), (5,5,5,2,2,2,5), (5,5,5,5,2,2,2), (5,5,5,5,2,2,5), (5,5,5,5,5,2,2), (5,5,5,5,2,5,2)\} = 24 \times 4 = 96$

$\{(2,2,2,2,2,2,2,2), (2,2,2,2,2,2,2,5), (2,2,2,2,2,2,5,2), (2,2,2,2,2,5,2,2), (2,2,2,2,5,2,2,2), (2,2,2,2,5,2,2,5), (2,2,2,2,5,5,2,2), (2,2,2,2,5,2,5,2), (2,2,2,5,2,2,2,2), (2,2,2,5,2,2,2,5), (2,2,2,5,2,5,2,2), (2,2,2,5,5,2,2,2), (2,2,2,5,5,2,2,5), (2,2,2,5,5,5,2,2), (2,2,2,5,5,2,5,2), (2,2,5,2,2,2,2,2), (2,2,5,2,2,2,2,5), (2,2,5,2,5,2,2,2), (2,2,5,5,2,2,2,2), (2,2,5,5,2,2,2,5), (2,2,5,5,5,2,2,2), (2,2,5,5,5,2,2,5), (2,2,5,5,5,5,2,2), (2,2,5,5,5,2,5,2), (2,5,2,2,2,2,2,2), (2,5,2,2,2,2,2,5), (2,5,2,5,2,2,2,2), (2,5,5,2,2,2,2,2), (2,5,5,2,2,2,2,5), (2,5,5,5,2,2,2,2), (2,5,5,5,2,2,2,5), (2,5,5,5,5,2,2,2), (2,5,5,5,5,2,2,5), (2,5,5,5,5,5,2,2), (2,5,5,5,5,2,5,2), (5,2,2,2,2,2,2,2), (5,2,2,2,2,2,2,5), (5,2,5,2,2,2,2,2), (5,5,2,2,2,2,2,2), (5,5,2,2,2,2,2,5), (5,5,5,2,2,2,2,2), (5,5,5,2,2,2,2,5), (5,5,5,5,2,2,2,2), (5,5,5,5,2,2,2,5), (5,5,5,5,5,2,2,2), (5,5,5,5,5,2,2,5), (5,5,5,5,5,5,2,2), (5,5,5,5,5,2,5,2)\} = 28 \times 4 = 112$