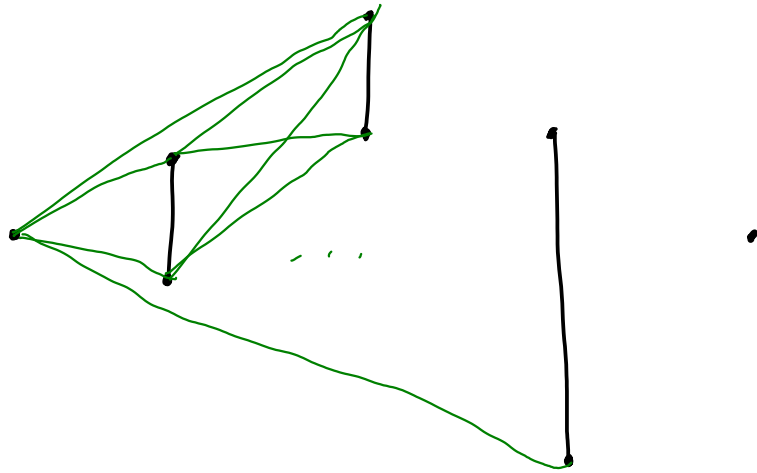
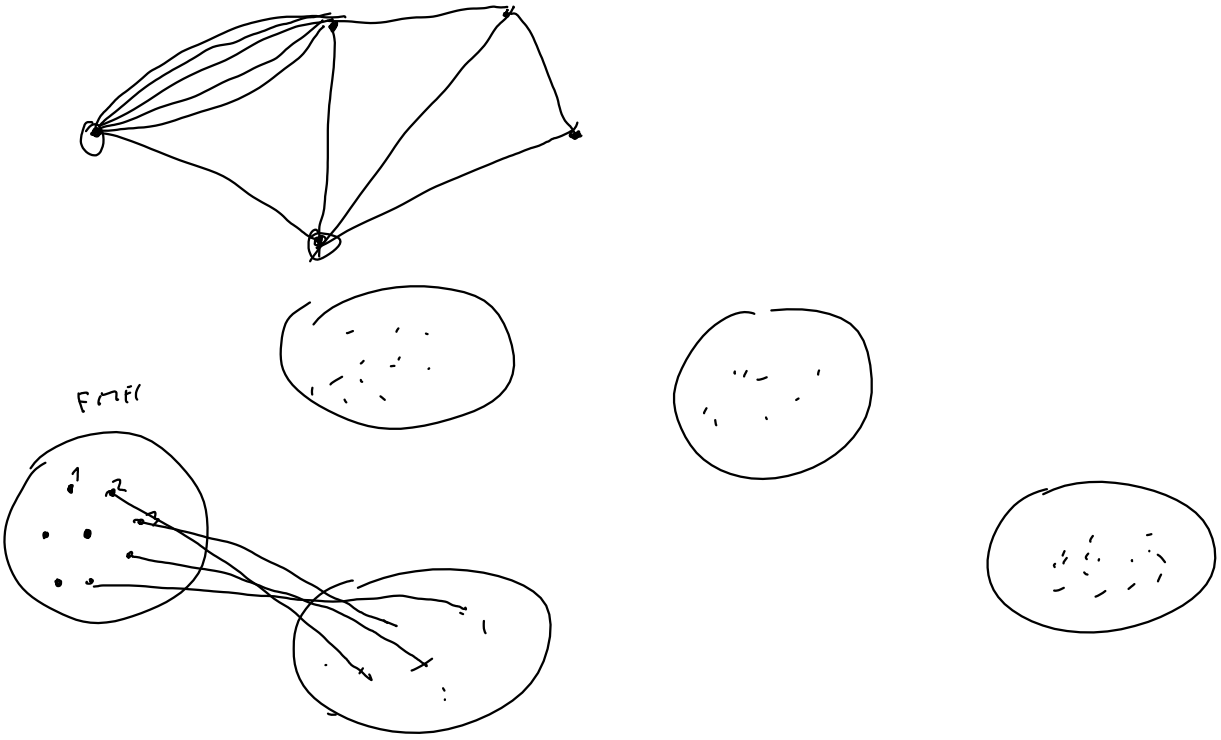
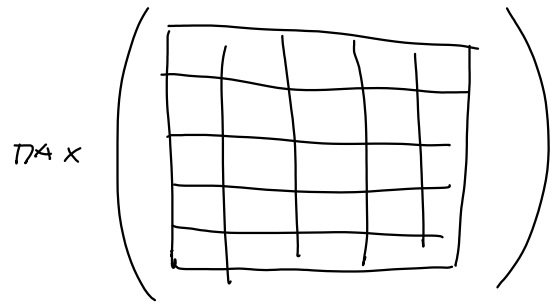
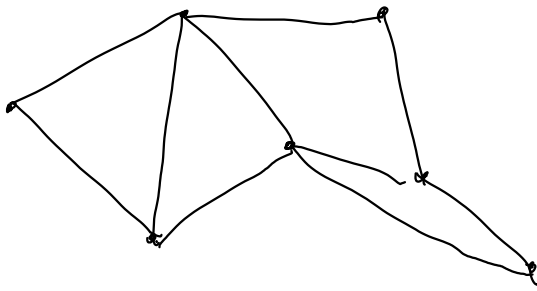


①



②





- 3-SAT → SUBSET-SUM
- 3-SAT → VC-D
- HAM → TSP-D
- HAM → HAMTA, L

COIN CHANGING ∈ NP V  
 ∈ NP-HARD ←

SUBSET-SUM ( $[a_1, a_2, \dots]$ ,  $A$ ):  
 TRANSFORMÁCIÓ

$[3, 5, 4, 7]$   $[8]$   
 80

COIN-CHANGING ( $[c_1, c_2, \dots]$ ,  $S$ ,  $B$ )  
 TRANSFORMÁCIÓ  
 RETURN

$$n = \max[a_1, a_2, \dots]$$

$c = [31000, 1000, 50100, 700, 40010, 10, 70001, 1]$

$$s = 80111$$

$$B = 4$$

$$20 \times 50100$$

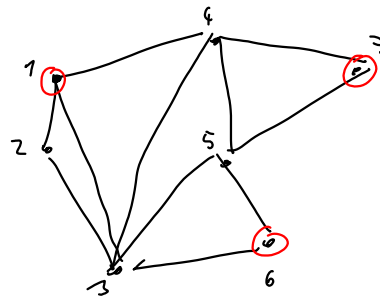
$$100 \times 700$$

TRANSFORMÁCIÓ

	$z_1$	$z_2$	$z_3$	$z_4$	$z_n$
ZOBÉR 3	3	1	0	0	0
MÉZOBÉR 3	0	1	0	0	0
$c_3$	5	0	1	0	0
	0	0	1	0	0
$\vdots$					
ZOBÉR 4	4	0	0	1	0
MÉZOBÉR 4	0	0	0	1	0
	7	0	0	0	1
	0	0	0	0	1
$[s = 80$	1	1	1	1	1]

3-SAT  $\rightarrow$  VC

INDEPENDENT SET ( $G, k$ )  $\rightarrow$  BOOL

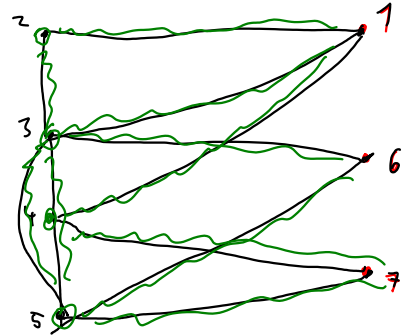


VC- $\bar{D}$  ( $G_v, k_v$ ):

$$G_i = G_v$$

$$k_i = n - k_v$$

INDEPENDENT-SET ( $G_i, k_i$ )

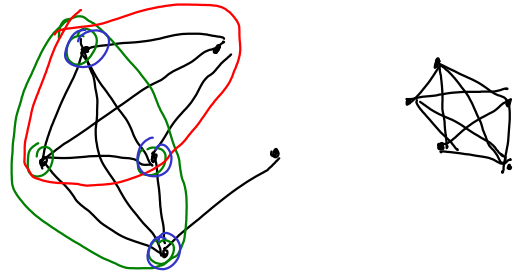


CLIQUE- $\bar{D}$  ( $G_k, k_k$ ):

$$G_i = \overline{G_k}$$

$$k_i = k_k$$

RETURN IS ( $G_i, k_i$ )



VC  $\rightarrow$  CLIQUE

