B.1
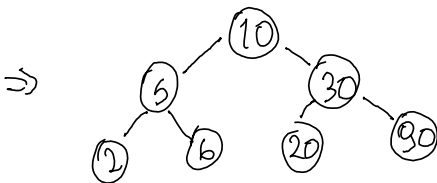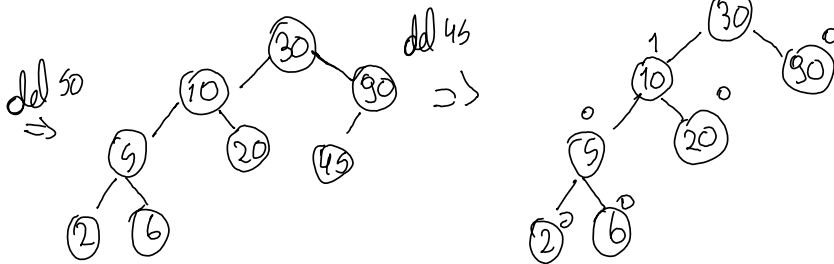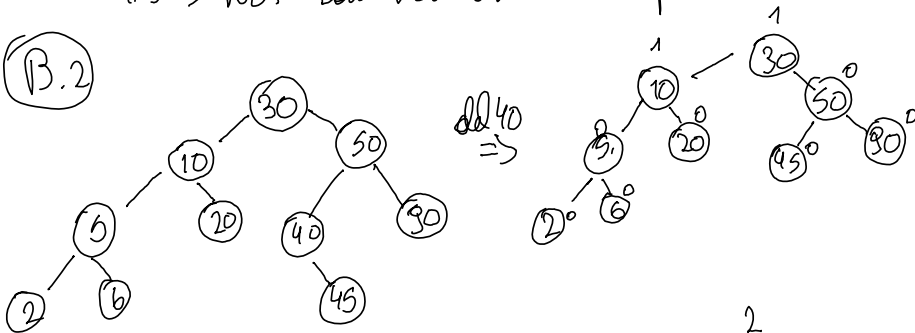
#1 → A Raiz é sempre preta

#2 → Um pai de cor vermelha não pode ter filhos vermelhos

#3 → Cada caminho a partir de um nó até uma folha tem o mesmo número de nós pretos

#4 → Todos os nós nulos são pretos

#5 → Nós são vermelhos ou pretos

B.2

00	10
01	
02	
03	32
04	
05	29
06	
07	18
08	19
09	20
10	21

$$h(k) = k \% 11$$

$$h_i(k) = (h(k) + i^2) \% 11 \quad , \quad i = 1, 2, 3 \dots$$

$$\checkmark \quad \checkmark \quad \checkmark \quad \checkmark \quad \checkmark \quad \checkmark \quad \checkmark$$
$$21, \, 10, \, 32, \, 18, \, 19, \, 20, \, 29$$

$$21 \% 11 = 10$$

$$10 \% 11 = 10 \rightarrow h_1(k) = (10+1) \% 11 = 0$$

$$32 \% 11 = 10 \rightarrow h_1(k) = 11 \% 11 = 0$$

$$\rightarrow h_2(k) = 14 \% 11 = 3$$

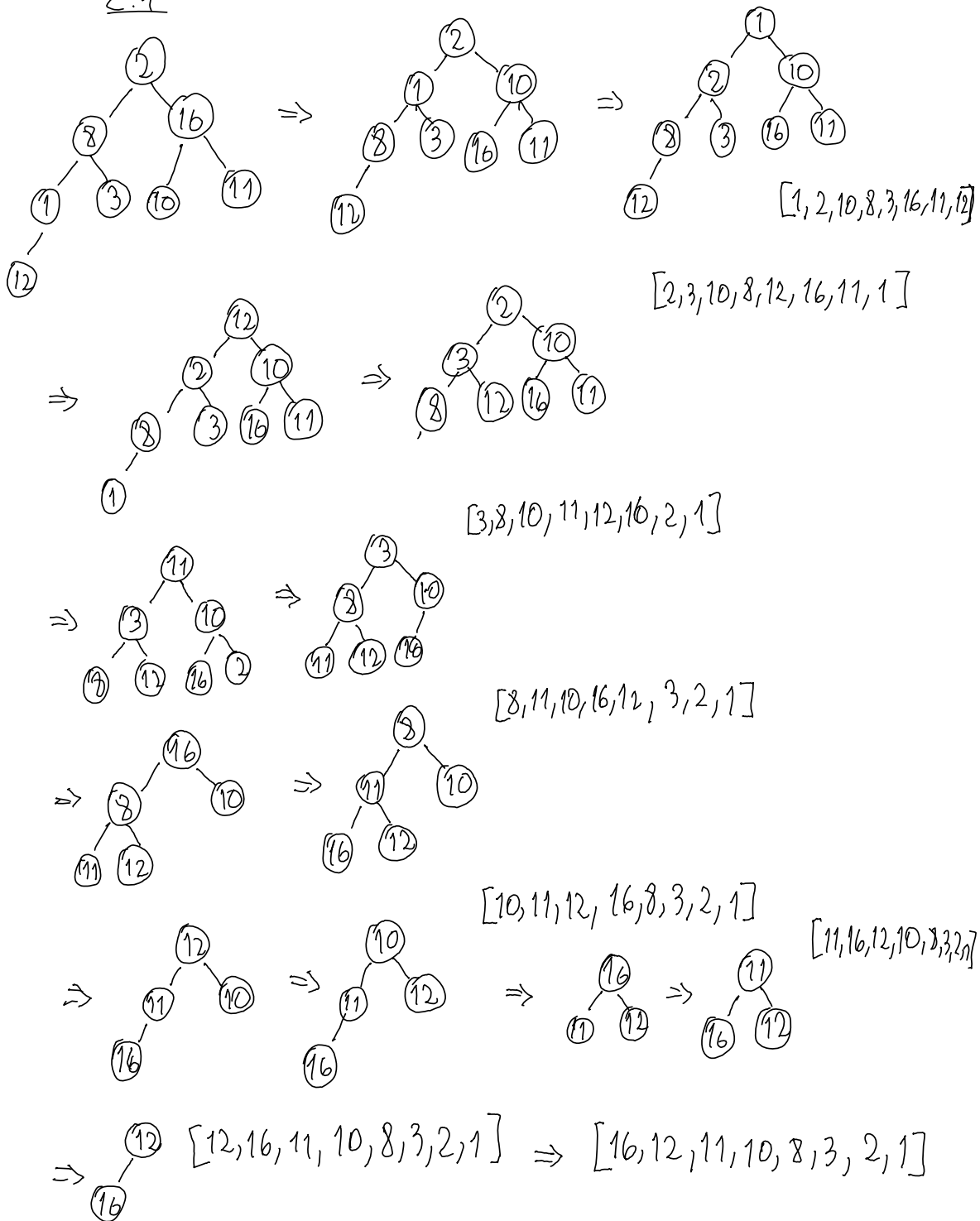$$18 \% 11 = 7$$

$$19 \% 11 = 8$$

$$20 \% 11 = 9$$

$$29 \% 11 = 7$$

$$\rightarrow h_1(k) = 8 \% 11 = 8$$

$$h_2(k) = 11 \% 11 = 0$$

$$h_3(k) = 16 \% 11 = 5$$

$[1, 2, 10, 8, 3, 16, 11, 12]$

$[2, 3, 10, 8, 12, 16, 11, 1]$

$[3, 8, 10, 11, 12, 16, 2, 1]$

$[8, 11, 10, 16, 12, 3, 2, 1]$

$[10, 11, 12, 16, 8, 3, 2, 1]$

$[11, 16, 12, 10, 8, 3, 2, 1]$

$[12, 16, 11, 10, 8, 3, 2, 1] \Rightarrow [16, 12, 11, 10, 8, 3, 2, 1]$

C.2 Mesmo de sempre