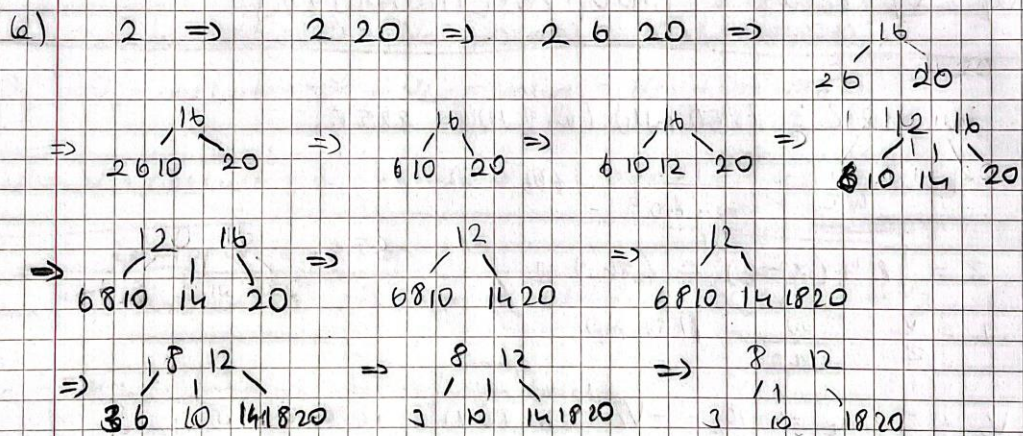
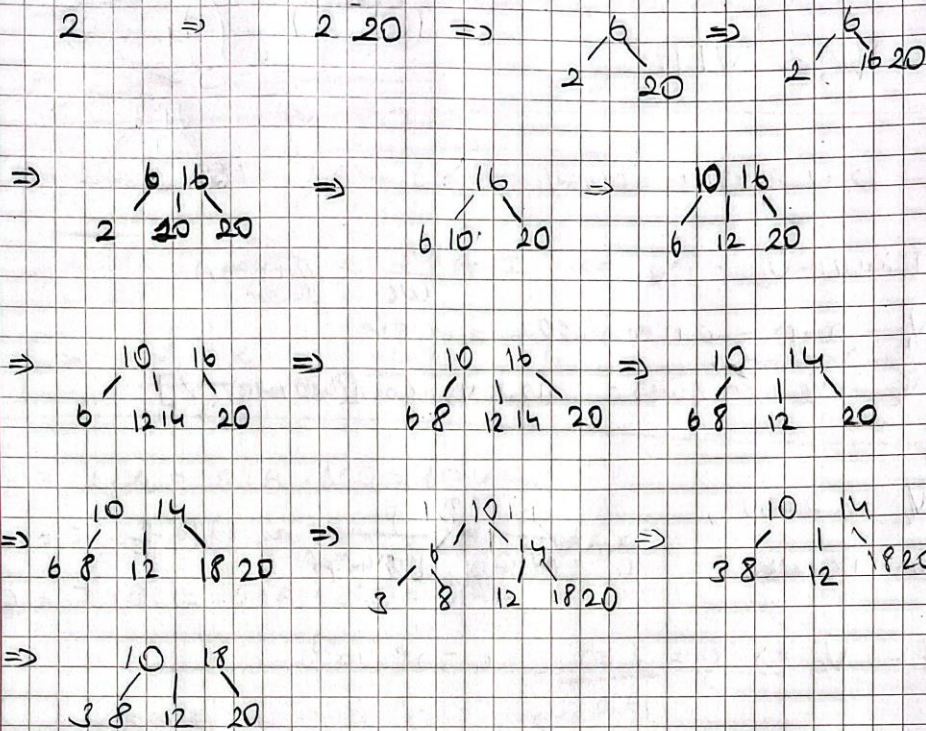


91) a)



9.2)

a)

0	1	2	3	4	5	6	7	8	9	10	11	12
26		54		17	69	45	58	32	60			64

$$\begin{aligned} 45 &= 13 \cdot 3 + 6 & 17 &= 13 \cdot 1 + 4 & 32 &= 13 \cdot 2 + 6^{**} \\ 64 &= 13 \cdot 4 + 12 & 69 &= 13 \cdot 5 + 4^{**} & 60 &= 13 \cdot 4 + 8^{**} \\ 54 &= 13 \cdot 4 + 2 & 58 &= 13 \cdot 4 + 6^{**} & 26 &= 13 \cdot 2 + 0 \end{aligned}$$

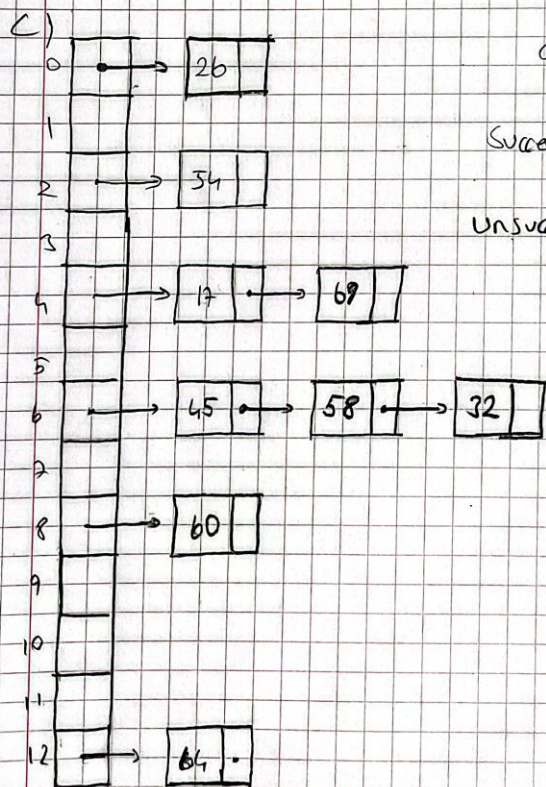
$$q = \frac{9}{13} \Rightarrow \begin{aligned} \text{Successful search avg} &= \frac{1}{2} \left[1 + \frac{1}{1 - \frac{9}{13}} \right] = \frac{17}{8} \\ \text{Unsuccessful search avg} &= \frac{1}{2} \left[1 + \frac{1}{(1 - \frac{9}{13})^2} \right] = \frac{185}{32} \end{aligned}$$

b)

0	1	2	3	4	5	6	7	8	9	10	11	12
26		54		17	69	45	58	60			32	64

$$\text{Successful search avg} = \frac{-\ln(4/13)}{\frac{9}{13}}$$

$$\text{Unsuccessful search avg} = 13/4$$



$$q = \frac{6}{13}$$

$$\text{Successful search avg} = \frac{16}{13}$$

$$\text{Unsuccessful search avg} = \frac{6}{13}$$