Let $n$ be the number of elements.

- Level $i$: number of nodes = $2^i$ except the last level.
- Max number of nodes above the $H$-level.
- $\sum_{i=0}^{H-1} 2^i = 2^m - 1$.

$$\sum_{i=1}^{m} 2^i = \frac{2^{m+1} - 1}{2 - 1} = 2^{m+1} - 1$$

$$2^{H-1} \leq n \leq 2^H - 1$$

$\Rightarrow H - 1 \leq \log_2(n+1) \leq H$

$\Rightarrow H = \Theta(\log_2 n)$
insert 40
Build - Max - heap for

\[ 16, 12, 9, 14, 8, 10, 11 \]

\[ \text{len} = 7 \]

Starting from:

\[ i = \left\lfloor \frac{7}{2} \right\rfloor = 3 \rightarrow 1 \]

\[ i = 2 \]

\[ i = 1 \]

\[ \text{done.} \]