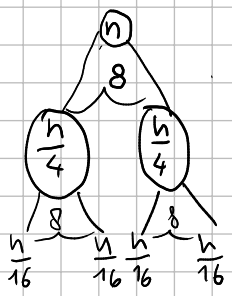
$$T(n) = \begin{cases} 1 & n \leq 4 \\ 8\,T\left(\frac{n}{4}\right) + n^{\frac{1}{2}} \end{cases}$$

LIVELLO	INPUT	CONTRIBUTO	RAMI	TOTALE
0	n	$n^{\frac{1}{2}}$	1	$n^{\frac{1}{2}}$
1	$\frac{n}{4}$	$\left(\frac{n}{4}\right)^{\frac{1}{2}}$	8	$8\left(\frac{n}{4}\right)^{\frac{1}{2}}$
2	$\frac{n}{4^2}$	$\left(\frac{n}{4^2}\right)^{\frac{1}{2}}$	8^2	$8^2\left(\frac{n}{4^2}\right)^{\frac{1}{2}}$
i	$\frac{n}{4^i}$	$\left(\frac{n}{4^i}\right)^{\frac{1}{2}}$	8^i	$8^i\left(\frac{n}{4^i}\right)^{\frac{1}{2}} = 2^{3i}\,n^{\frac{1}{2}} = 2^{2i}\,n^{\frac{1}{2}} = 4^i\sqrt{n}$



CASO BASE

$$\frac{n}{4^h} = 4 \Rightarrow n = 4^{h+1} = \log_4 n = h+1 \;/\; h = \log_4 n - 1$$

COMPLESSITÀ

$$\sum_{i=0}^{k} \sqrt{n}\,4^i = \sqrt{n}\sum_{i=0}^{k} 4^i = \sqrt{n}\,\frac{4^{h+1}-1}{4-1} = \sqrt{n}\,\frac{4^{\log_4 n}-1}{3} = \frac{\sqrt{n}\cdot n - 1}{3} = \Theta n\sqrt{n}$$