Ex 1 A or B

$n^{\log_b a} = \begin{cases} n^{\log_2 2} = n \\ n^{\log_4 4} = n \end{cases}$ caso 1 $\longrightarrow \Theta(\log^2 n) = O(n^{1-\varepsilon})$

basta prendere $0 < \varepsilon < 1$

p.e. $\varepsilon = 1/2$

Ex 2

risolto in laboratorio

Ex 3

Quickselect conta $\begin{cases} \Theta(n) \text{ caso medio} \\ \Theta(n^2) \text{ caso peggiore} \end{cases}$

$T(n) = 2T\left(\frac{n}{2}\right) + \Theta(n)$ caso medio $\longrightarrow T(n) = \Theta(n \log n)$

$2T\left(\frac{n}{2}\right) + \Theta(n^2)$ caso peggiore $\longrightarrow T(n) = \Theta(n^2)$

Ex 4

Simulazione

Ex 5

Copia A in B

Heapsort (B)

For $y = 1$ To $n-1$ do — $-B[y]$

r = RicercaBinaria $(B, 3 \cdot B[y], y+1, n)$;

if $(r \neq -1)$

for $x = 1$ To n do if $(A[x] = B[y])$ $i = x$;

if $(A[x] = -B[y])$ $j = x$;

$3 \cdot B[y]$

if $(i < j)$ return $<i, j>$ // per $A[i] + A[j] = 0$ no if

return $<-1, -1>$