

MA1124 Assignment8
[due Monday 16th March, 2015]

1. Show that if A is a bounded set then $\text{l.u.b.}(A)$ is an element of A or a point of accumulation.
2. Show that if A is open $\text{l.u.b.}(A)$ is not in A and it is if A is closed.
3. Show that if f is continuous and if O_1 and O_2 disconnect $f(A)$, then $f^{-1}(O_1)$ and $f^{-1}(O_2)$ disconnect A .
4. Show that if $\forall \epsilon \ N(x, \epsilon) \cap A \neq \phi$, then x is in the closure of A .
5. Show that if $x_n \rightarrow x$ and $|x_n - y_n| \rightarrow 0$ then $y_n \rightarrow x$.