Show that the supspace (a,b) of R is homeomorphic with (0,1) and that [a,b] is homecmorphic with [0,1] define f:(a,b) >(0,1) by $f(x) = \frac{x-a}{(b-a)}$, $f^{-1}(x) = a + (b-a)x$, f is bijective $f\left(\left(\begin{array}{ccc} a_{1} & b_{1} \end{array}\right) = \left(\begin{array}{ccc} \frac{a_{1} - a_{1}}{b - a_{1}} & \frac{b_{1} - a_{2}}{b - a_{1}} \right) = \left(\left(\begin{array}{ccc} \frac{a_{1} - a_{1}}{b - a_{2}} & \frac{b_{1} - a_{2}}{b - a_{2}} \right) \cap \left(\begin{array}{ccc} a_{1} & a_{2} & \frac{b_{1} - a_{2}}{b - a_{2}} \end{array}\right) \cap \left(\begin{array}{ccc} a_{1} & a_{2} & \frac{b_{2} - a_{2}}{b - a_{2}} \end{array}\right)$ so for is continuous, similar to show that f is continuous. Thus (a,b) and (0,1) are momeomorphic bijective f. [a,b] ->[0,1] as be fore this is sur we have already shown that for (a,b,) c(a,b) of maps to open sets and Consider then $f'([a,b]) = [a,\frac{b-a}{b-a})$ open in the subspace topology for [0,1] so fis continuous. Similar to show that f is continuous Thus [a,6] and [o,1] are homeomorphit (we should check [a,b], (a,b) as well)