

let  $X$  be a compact Hausdorff space.  
Show that  $X$  is metrizable  $\Leftrightarrow X$  has a  
countable basis

~~For~~ " $\Leftarrow$ " We know that  $X$  is normal hence  
regular. By Urysohn's lemma  $X$  is metrizable  
" $\Rightarrow$ " shown in 31.4