

111. Let  $\mathcal{B}_1$  and  $\mathcal{B}_2$  be Borel fields. Prove  $\mathcal{B} = \mathcal{B}_1 \cap \mathcal{B}_2$  is a Borel field. (You must prove that  $\mathcal{B}$  satisfies the three properties of a Borel field).