

AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES  
(AIMS RWANDA, KIGALI)

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Name: Yusuf Brima

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## Exercise 1

Let  $D_n = (x_i, y_i) \stackrel{\text{iid}}{\sim} p_{x,y}(x, y), x_i \in \mathbb{R}, y_i \in \mathbb{R}, i = 1, \dots, n$ . Consider using the data  $\mathcal{D}_n$ , to build mappings  $f : x \rightarrow Y$ , such that  $f \in \mathcal{H}$ , where