Homework

1. Let $X = \{x \mid (x_1, x_2) \in R^2\}$,for two fixed c_1, c_2 ,let $f(x) = c_1 x_1 + c_2 x_2$,please show that $f(x)$ is a linear function defined on linear space X . Please show that set $X' = \{f(x) \mid f(x) = c_1 x_1 + c_2 x_2, c_1 \in R, c_2 \in R\}$ is a linear space and point out a basis of this space.
2. Let $X = \{h(s) \mid h(s) \text{is a continuous function defined on } [0,1], 0 \le s \le 1\}$, for any point s_1 in [0,1], please show that $f(h) = h(s_1)$ is a linear function defined on linear space X .