Introductory Mathematical Economics
Problem Set 1

1. Prove that the inverse image or preimage preserves inclusions, unions, intersections and difference of sets while the direct image preserves inclusions and unions only.

2. Consider $f \mid \Re^2 \to \Re^2$ defined by $f(x_1, x_2) = (x_1 x_2, x_1 + x_2)$, $\forall (x_1, x_2) \in \Re^2$.
(a) Find $Range(f)$ and draw it as a subset of $\Re^2$.
(b) Let $A = [0, 1] \times [0, 1]$. Find and draw $f(A)$.