

QUIZ-2

1. Can we have a C^∞ 1-1 map: $\mathbb{R}^2 \rightarrow \mathbb{R}$?
Explain. (3)

2. Let G be a Lie group, $\mathfrak{g} = \text{Lie } G$,
 $X \in \mathfrak{g}$. Let $\text{Exp}_X : G \rightarrow G$ denote
the exponential map corresp. to X .
Prove that $\text{Exp}_X(g) = L_g(\exp(x)) \forall g \in G$,
Where $\exp(x) = \text{Exp}_X(e)$. Deduce that
the flow of X is given by
$$F_X(t, g) = g \exp(tx), t \in \mathbb{R}, g \in G.$$

(3).