Advanced Topics in Geometry A1 (MTH.B405)

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Notice

 Sorry that the uploaded files of the blackboards on April 25 was incorrect.
 I've uploaded the correct versions.

 Deadline of today's homeworks: May 13 (Tue) 10:00JST.

${\sf Q} \mbox{ and } {\sf A}$



Maximal solution
Solution to
$$\left(\frac{dx}{dt} = - - \Re(t_0) = 0\right)$$

which cannt be extended to awider interval
i.e. $\neq \Re(t_0): \widetilde{T} \longrightarrow \mathbb{R}$: colution, s.t
 $\widetilde{I} \neq I$

$$\frac{d}{dt} x = t(1+t^{2}), \quad \chi(0) = 0$$

$$\frac{n=1}{n=1}$$

$$g(t) = \tan\left(\frac{1}{2}t^{2}\right) \qquad \chi(t) = \tan\left(\frac{1}{2}t^{2}+\frac{1}{4}\right)$$

$$(-\pi(t)(\pi)) \qquad (-\frac{\pi}{2}(t) = t^{2})$$

${\sf Q} \mbox{ and } {\sf A}$

Q: In Exercise 2-1, for example, the equation is solved without giving the domain of x. Is there a situation that one wants to know "a function whose domain is not known (not determined) but whose differential equation is known"? Examples in physics are easy to understand.

He Maxim-A A Usually, the domain of definition of solution of a differential equation is determined <u>a posteriori.</u>

e.g. the equation of geodesics in surface theory and/or Riemannian geometry.