## Intro Continuel

· Class Structure:
I first o, der ODE W one dependent variable
2. High order linear ODEs w one dependent variable
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· Nok: More han one differential is out of the scope of the class
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tirst-Order ODEs: Intro
· A DE is explicit if it can be put the form: dr = f(t)  V(t) = Sf(t) dt = F(t) + C = y and E am the interiors/new vers
V(+) = f(4) dt = F(+) c = 2 and F and the industrial land
- without additional constraints, this usually shows infinite orlutions
- initial conditions (f(0)=4 for ex) is the additional construct most used
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- Interval of Definition: The interval in which you are confill the solution is valid
- Could en at a division by 0 or asymptote
tx: Solution = +/1+-+ and (a)=1
- Could and at a division by 0 or asymptote  - Ex: Solution = +/It-F2 and y(1)=1  Tolumediate Volum Problems specify a for Mut solurs 70p and To V-F solution
Titumediate Value tradems specity a for that solvers ZUP and I. V - F solution
Initial value: a ke Y(+z) = Yz
de
· Can be written as: p(t) dy + g(t) y = v(t)  (oef. Ans / Forcely or driving  - Note: P(t) \$\neq 0\$ for t's we are observing
coef. fins forcing a driving
- Note: PU) \$0 for t's we are observing
and and
· Linear Normal Form: of + a(t) y = f(t) where a(t) = puts, f(t) = puts
· Exponential (ase to + ky =0 => of = cy like of et = cect
. A liner DE is homogeneous if f(4) =0, orravise non homogeneous
13 romogeneous II full formise non rispercetos