DE (First Midterm—Chapter 1)

Total points: 100 points 2hours to do the work,

1. Solve the initial value problem.(10 points)

*；*



←3



Let



←5



←10



1. Solve the initial value problem. (15 points)

*； y*(1)*=*-5

Let y=ux ←2

←3

←8

ln()=-lnx+c

ln()=ln+ln ←10

let

←12

y(1)=-5=ln(A-1) A=

←15

1. Solve the initial value problem. (10 points)

*；*



Let ←2



←5



←7



←9



←10



1. Find an integrating factor, use it to find the general solute on of the differential equation, and then obtain the solution of the initial value problem. (20 points)

*；*

若有明確嘗試解u🡪2分



證明未正和5分



←9



G.S. : ←18



代入



←20



1. Solve (15 points)

原式同除另成式1 ←2

Let u= 帶入式1 ←3

同除

第二式

乘回二式

←10

←15

1. Please solve the differential equation. (15 points)

←2



←4



Let



←8



←12



←15



1. Solve (15 points)

Let z=y+x y=z-x dy=dz-dx ←3 嘗試用其他方法未解出也3分

代入原式 可得

同乘 設z0 ←8 若z0沒寫-1分

y=z-x=-x 為通解 ←13

當z=0 y=-x為奇異解 ←15