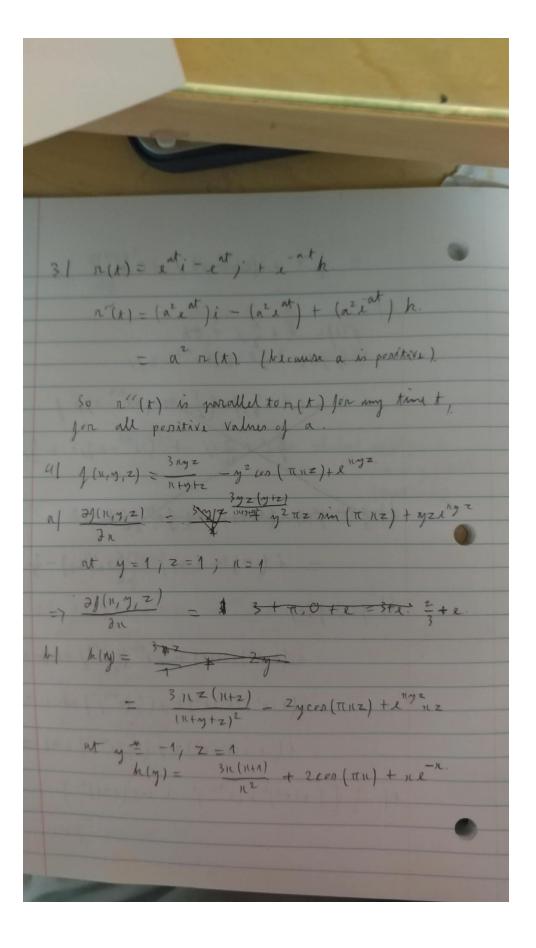
Nam Nguyen 1/  $\int (u,y) = \frac{\pi}{nm(u)} + y \, ln(y)$   $\int \left(\frac{\pi}{2},1\right) = \frac{\pi}{nm(\frac{\pi}{2})} + ln1$ b) An x >0 We have him in -1 As y >0 We have him yhly) = -0 So as nondy both goo, lim 1(ny) =-0 c/ 21 (1/7) - (1/2)/+0 > dy(0,0) - impossible because sin2/11/=0. will make an equation of 0 dy (\frac{7}{2}/1) = 1

```
d\left(\frac{\partial f(x_1,y)}{\partial x_1} - (y \ln(y))'\right)
                  = 1 ln(y) + 2
                      = \ln(y) + 1. = 1
      At n=0 and y=0
                                as an ln(y) will go to
                                                         - v as y goto 0 (question b)
     At . 11= 17 , 7=1
       => 21(m/m) = 1
2) f(t) = (1+t^2)i + 1+t^2 j + (-1)(2\pi t)k.

a(t) = (1+2t)i + (1+t^2)j + (-2\pi \sin(2\pi t))k.
         J''(A) = 2i + (\frac{1}{4}i^{2})j + (-i(n^{2}(en(2nt)))k
 h | 50 1 (t) at.
        \int \int (t) dt = \left(\frac{t^2}{2} + \frac{t^3}{3}\right) i + \left(\frac{2t^2}{2t^2}\right) i + \left(\frac{\sin(2\pi i)t}{2\pi}\right) i
 -> 50 1 (+) dt= (1+1)i+(2112); + + O.h.
                    -[(0)i+2;+0.]
```

= 5 i + (2e - z) j + 0h.  $f(0) = i + \frac{1}{2}i + 0k.$   $f(1) = \frac{5}{6}i + \frac{1}{2}i^{1/2} - \frac{2}{6}i$ = (i+1)/A(5i+(2e-2)))  $=\frac{5}{1}\sum_{i=1}^{2}\frac{1}{1}\sum_$ d + 1 (+), 1 (+) = (112x)i + (2x)i+ = i(0)+(0)j+((2x12)-1-7).k d/ 1(x). 1(x), = i (+++2) (1+24) + jet12 (1 +12) + h (- 17 sin (412) = i(++2+2+2+2++3)+ j(1/2(et12)2)+/2(-TI sin(4T)2) = i(++3+++5)+; (1/2(1+12)2)+h(-nin(an 2[ 1 ( ++x2)2+(e+12)2 +. (ex(2ax)2)



c/ k(z) = 314y (114y) + Ting 2 sin (Tinz) + 1192 mg At 11-0 k(z) = 0 + 0 + 0  $(7+z)^2$ 0