Some Problems on ODE: (Home Work):

1) Verify that the following exposer and Solve them:

(22-yz) dn + zydy =0 xy'-3xy-2y=0, Shere y=3x

 $\nabla y' = 3(x+y) fan'y + 2y$

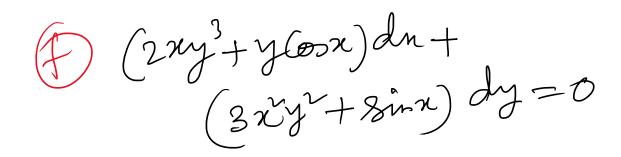
a xsin yn fr = ysin yn + n e y = y + 2 x e m

(x-y) dn - (x+y) dy, =0

2) Solve tre following ODEs:

(a) $y' = (x+y)^2 (b) y' = 8in(x-y+1)$

2444 C dy = X-Y-6 $\frac{dy}{dx} = \frac{x+y+4}{x+y-6}$ x + y - 6Determene which of the following eps are exact and Solve it: (2) (2+7/2) dy +y dn =0 (yty corry) dnt (x+x(ory) dy (8 in $x \sin y - x e^{x}$) $dy = (e^{x} + e^{x})$ Cosx Cory) du e - J sin 2 da + 2 sin 2/4 dy = 0



Answers o

(1) (a) y=x+cx4

(b) y = cx(x+y)

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d Cos Mre + log cr = 0

e y=xlog(logcx)

(f) 22y-y=c

(2) a x+y= fan(x+c)

(b) fan (x-y+1) = x+c

 $\int \int \frac{1}{2\pi} \left(\frac{y+5}{x-1} \right) = \log \sqrt{(x-1)^2 + (y+5)^2} + C$ (d) y-2 = 5log(x+y-1)+C (3) a my + logy2=c 6 4 my - x4+y4=c C My + Sinny = C a rey + sin x Cory = C (e) Con 2y = c or 2y = c (F) 22y3+y8in=c

**** END ****