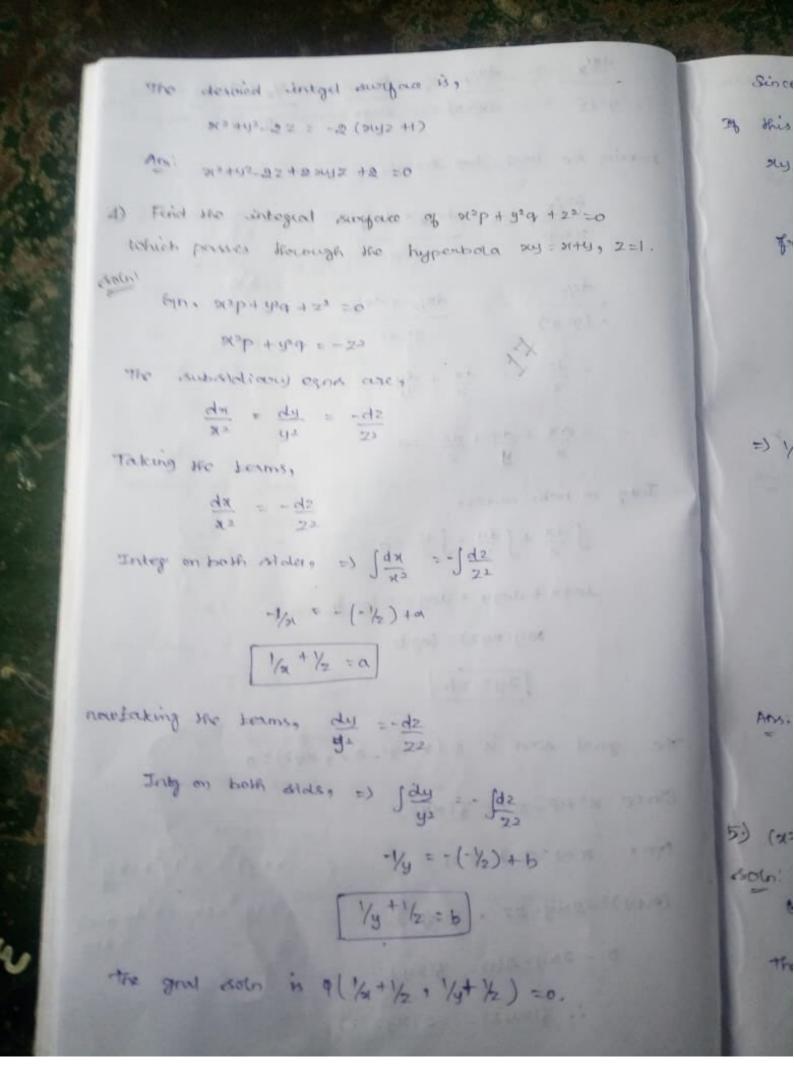
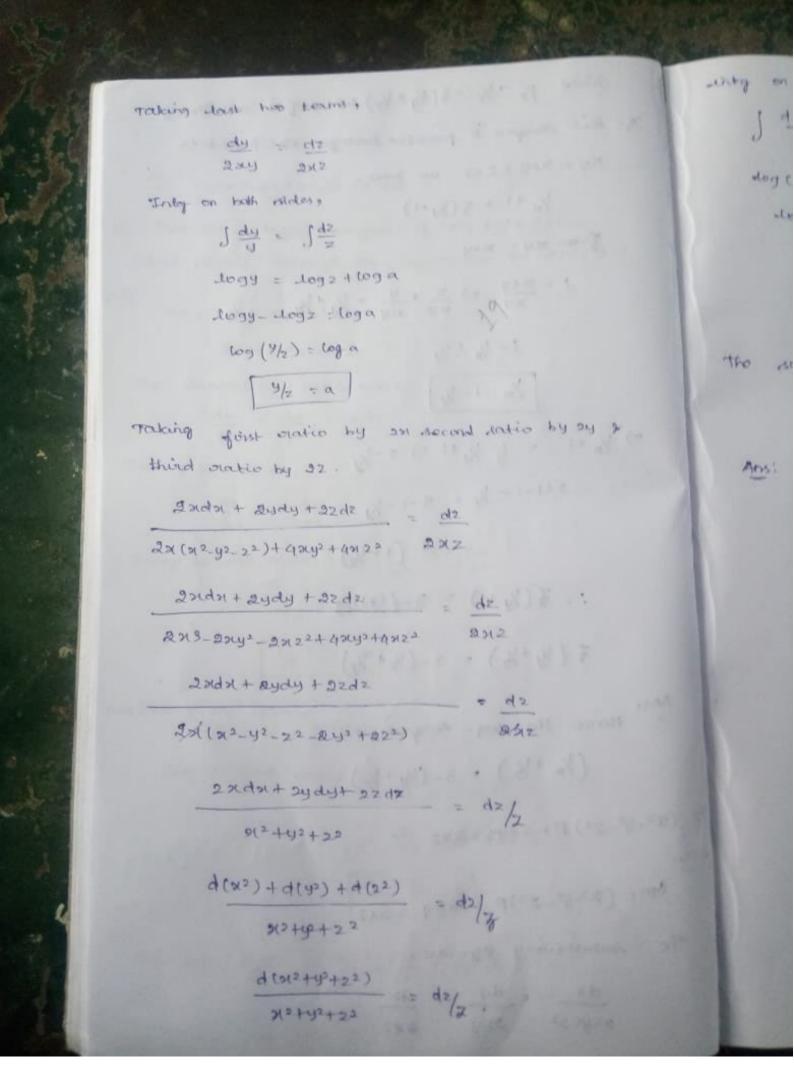


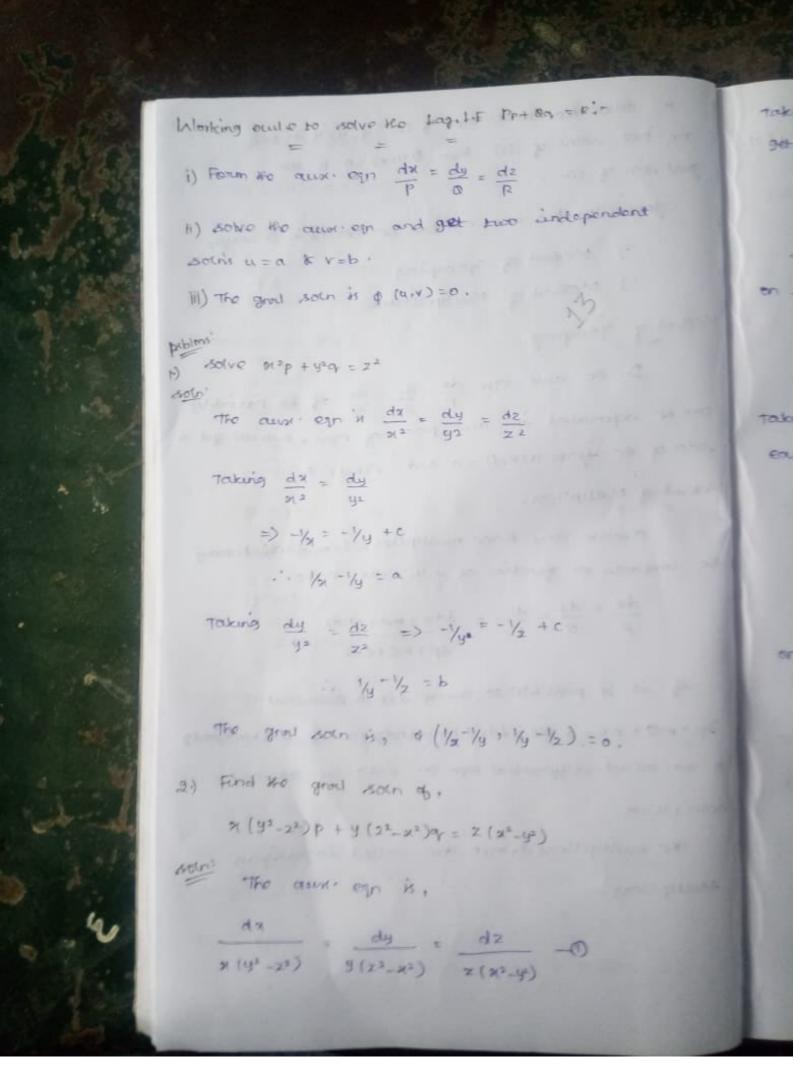
taking to lagrangian multipliers ors 21,4,2. we get each statio of 10 equal to xdn + ydy + zdz xdn + ydy + zdz E x2 (42-22) .. sida +ydy+ 2dz =0 on linda, $\frac{9(2)}{2} + \frac{92}{2} + \frac{22}{2} = 0$: [x2+y2+22= all as one soln. taking the Lagrangian multipliers as 1/21 1/4 1/2 we get each outio of O equal to, dx + dy + d2 dx + dy + d2 E(x12-y2) :. dot + dy + d2 =0 on intog, loga + logy + log z = logb :- Lug (ocyz) = lug b [xyz = b] is another soin. . . The grad solo is q (212+42+22, 2642) = 0.



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4) Eliminating at by from
$$x = ax + by + a$$
 $(an) = x + y + y + a$

Druste $x + y + y + a$
 $\Rightarrow \frac{\partial z}{\partial x} = p = a + b + a + b + a + b + a$
 $\Rightarrow \frac{\partial z}{\partial y} = q = a + b + a + b + a + b + a$

Eliminating $a + b + a + a + b + a + b + a$
 $\Rightarrow \frac{\partial z}{\partial y} = q + a + b + a + a + a + b + a$

Eliminating $a + b + a + a + a + b + a$
 $\Rightarrow \frac{\partial z}{\partial y} = p + a + a + b + a$
 $\Rightarrow \frac{\partial z}{\partial y} = a + b + a + a + a + a + b + a$

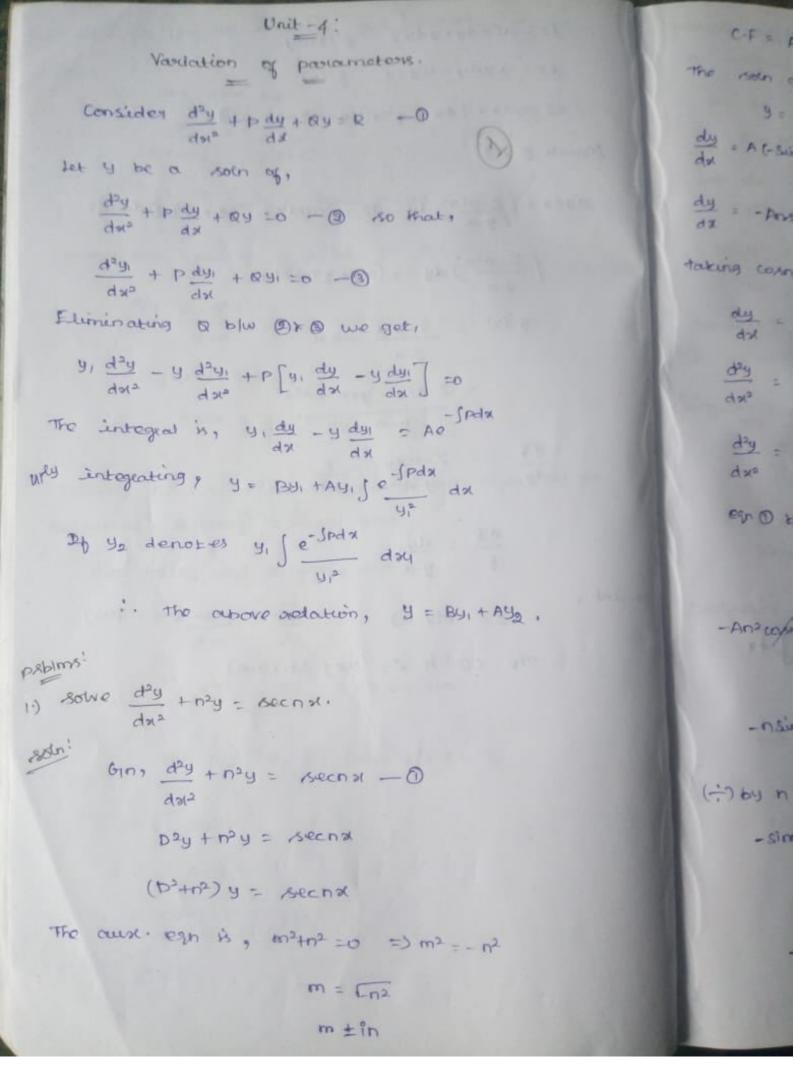
Druste $a + a + b + a + a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + b + a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + a + a$

Drust $a + a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + a + a$

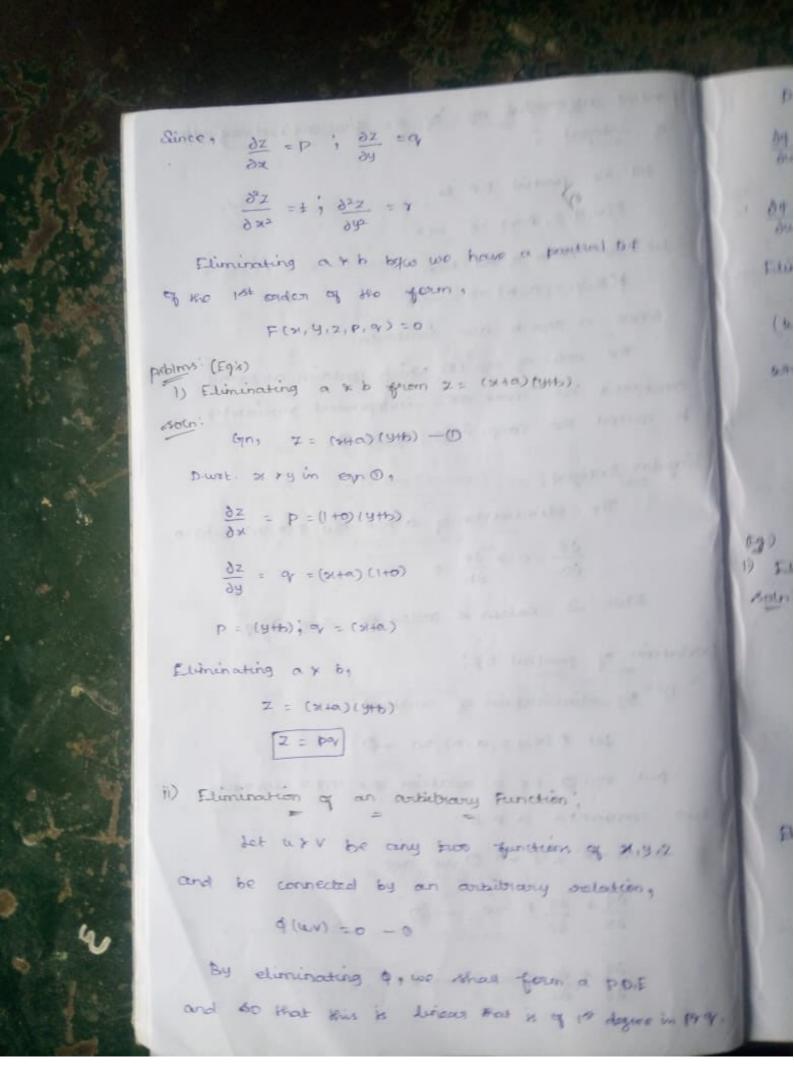
Drust $a + a + a + a + a$
 $\Rightarrow \frac{\partial z}{\partial x} = a + a + a$

Drust $a + a + a + a + a$
 $a + a + a + a + a$
 $a + a + a + a + a$
 $a + a + a + a + a$
 $a + a + a + a + a$
 $a + a$

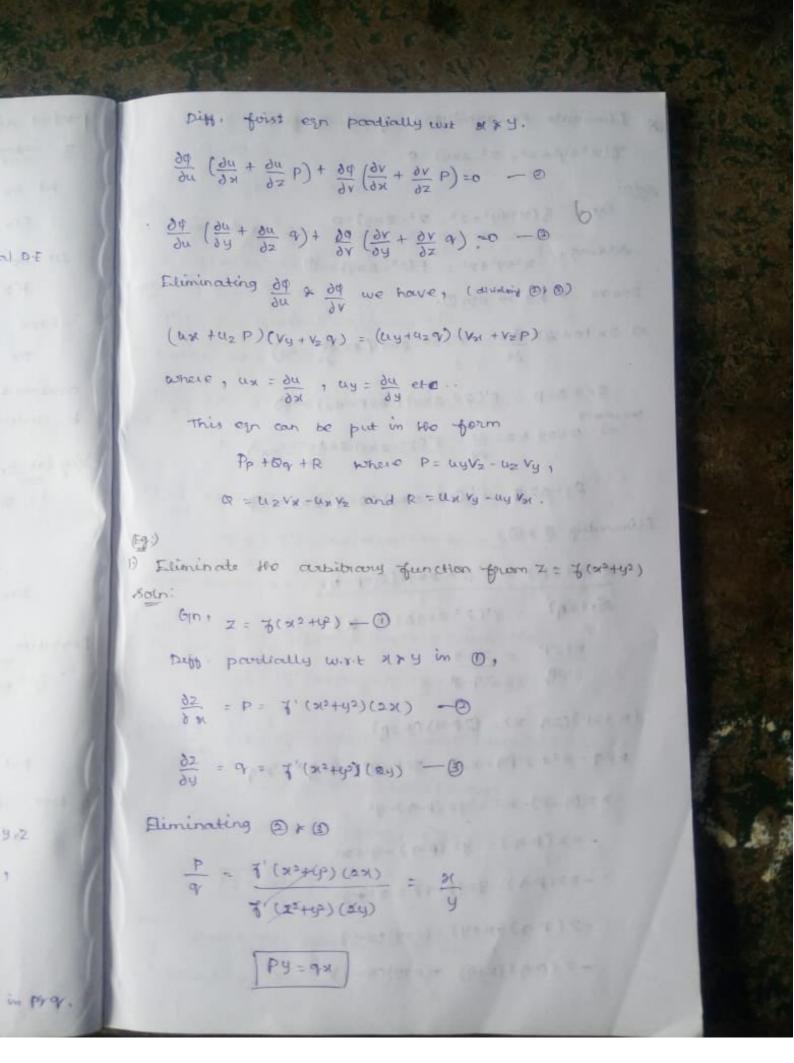
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$$\frac{dx/x}{y^2+y} = \frac{dy/y}{(x^2+y^2)} = \frac{dx/y}{x^2+y^2} = \frac{dx/y}{y^2+x^2}$$

$$\frac{dx/y}{y^2+x^2} = \frac{dx/y}{y^2+x^2} = \frac{dx/y}{y^2+x^2}$$

$$\frac{dx/y}{y^2+x^2} = \frac{dx/y}{y^2+x^2} + \frac{dy}{y^2+x^2}$$

$$-\frac{dx}{x} = \frac{dx}{y} + \frac{dy}{x^2} = 0$$

$$\frac{dx}{x} + \frac{dy}{y} + \frac{dx}{x^2} = 0$$

$$\frac{dx}{x} + \frac{dx}{y} + \frac{dx}{x^2} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

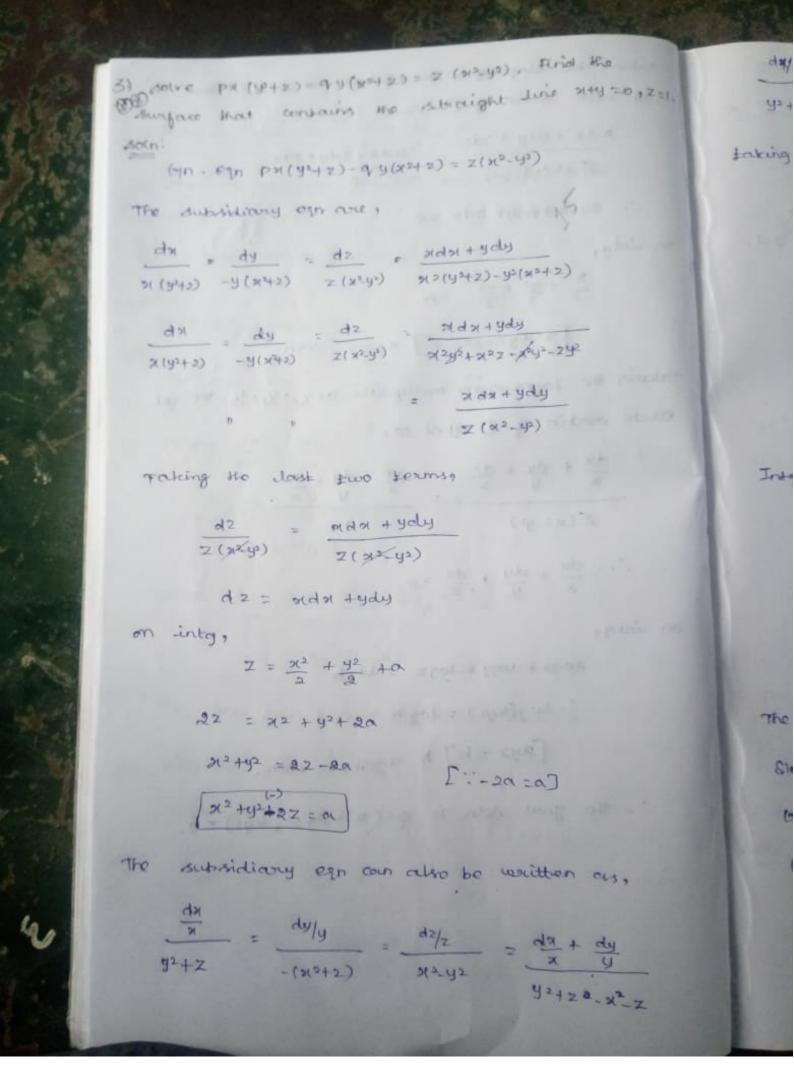
$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x} = 0$$

$$\frac{dx}{x} + \frac{dx}{x} + \frac{dx}{x}$$

is could the aux. egn of o. if u=a + v=b cene two solins of (2) then $\Phi(u,v) = 0$ is the good solo of cis. generally, the cust egrican be solved in a ways, 1) Meshod of Genouping ii) Meshod of Multiplication. Method of Grouping; Do the aux can $\frac{dx}{p} = \frac{dy}{0} = \frac{dz}{R}$ if the variables can be experiated in any pair of egns, then we get a soin of the form u(siy) = a and v(siy) = b. Method of Multipliers; choose any three multipliers 1, m, n which may be constants on function of 11.4.2. we have $\frac{dx}{P} = \frac{dy}{R} = \frac{dz}{R} = \frac{1}{2} \frac{dx}{dx} + \frac{1}{2} \frac{d$ if it is possible to choose I, m, n such that Ip+ma+nR=0 then dax+may+ndo=0. if Idn+maythdo is an exact differential from on into we get a soin, u=a The multipliers do mon one could lagrangian Coultan Multipliers.



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$$\frac{\partial z}{\partial y} = 2z \frac{\partial z}{\partial y} = 2yb^{2}$$

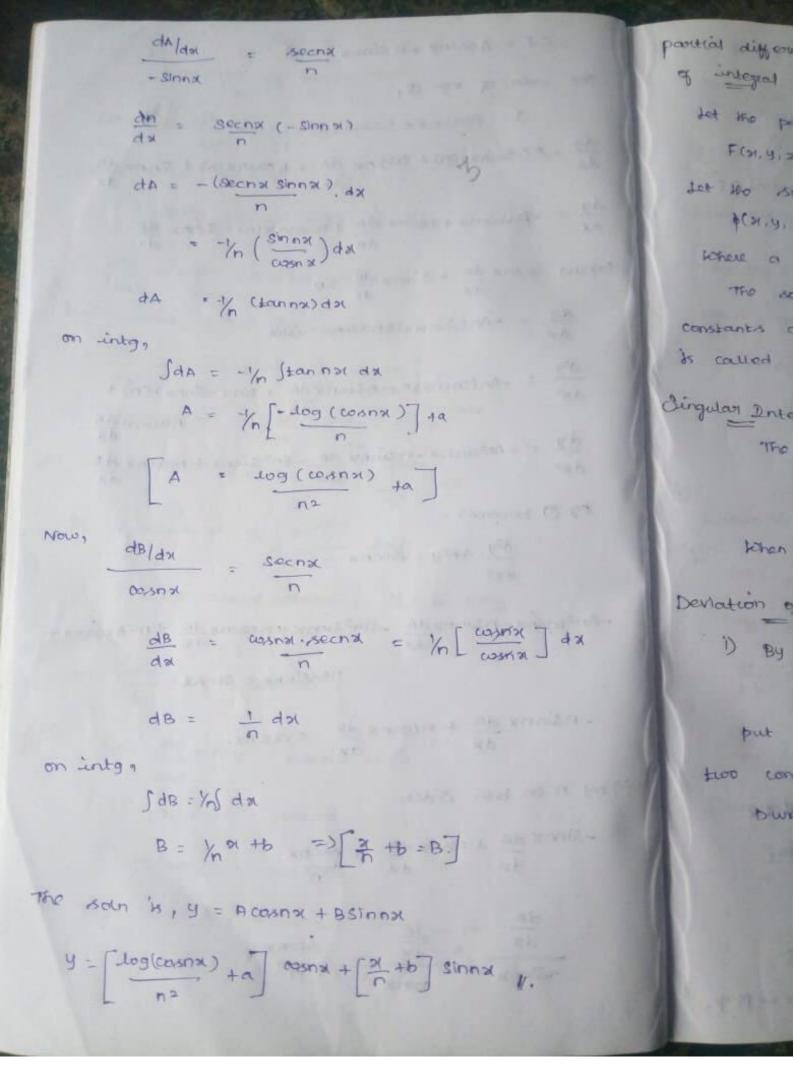
$$\frac{\partial z}{\partial y} = q = \frac{2yb^{2}}{1-2a^{2}z}$$

$$\frac{\partial}{\partial y} = q = \frac{2yb^{2}}{1-2a^{2}z}$$

$$\frac{\partial}{\partial y} = \frac{2yb^{2}}{1-2a^{2}z} \times \frac{1-2a^{2}z}{2yb^{2}} = \frac{2yy}{2}$$

$$\frac{\partial}{\partial y} = \frac{2yb^{2}}{1-2a^{2}z} \times \frac{1-2a^{2}z}{2yb^{2}} = \frac{2yb^{2}}{2}$$

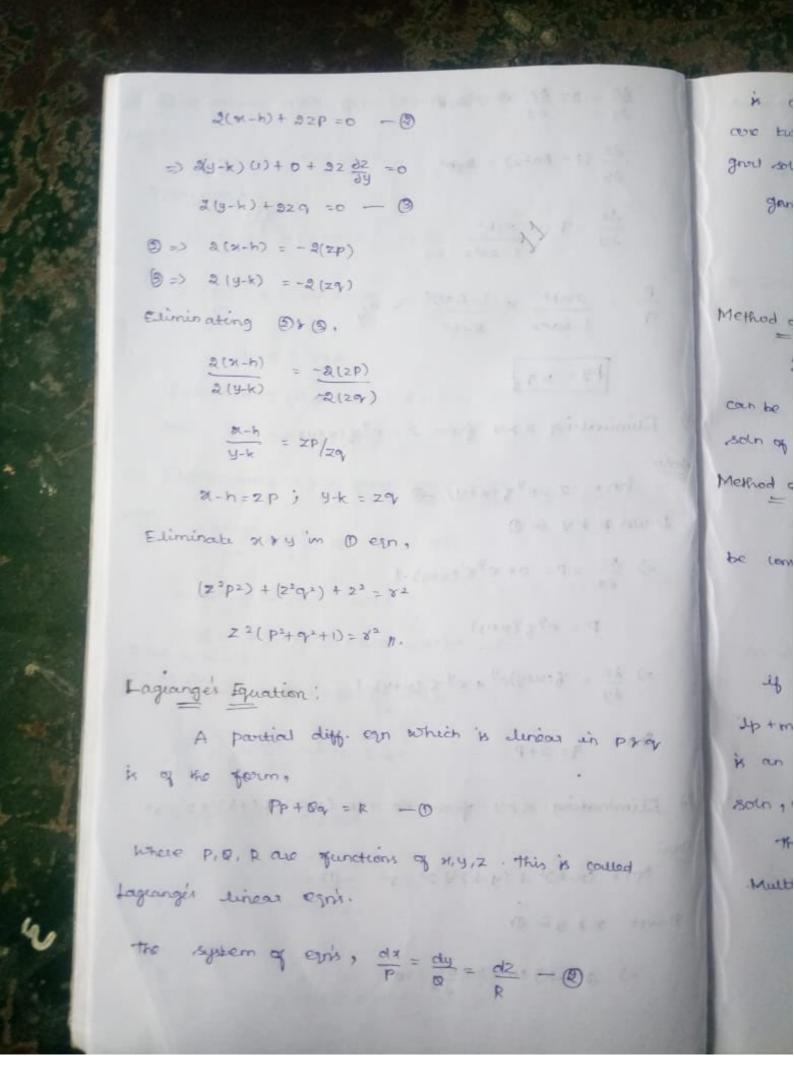
$$\frac{\partial}{\partial y} = \frac{2yb^{2}}{1-2a^{2}z} \times \frac{1-2a^{2}z}{2} \times \frac{1-2a^{2$$



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Since
$$y_{x} + y_{y} = \delta(y_{y} + y_{y})$$
 where y_{y} is considerating.

The string and is provided the content of the provided that $y_{y} = 2 + y_{y} + 1 = y_{y} + y_{y}$



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partial differential ego. of the first order classification of untegral Let the prouted DF be F(31. 4. 2, P.9) =0 -0 Let 100 soin of this be, \$(31,4,2,0,6)=0 -(3) Where a and b are constants. The soln of egn (2) which contains as many constants as there are independent variables its called to comp. Into of on O. dingular Integral; The elimination of a x b blu p(x14,2,0,6)=0. $\frac{\partial \phi}{\partial \alpha} = 0$ $\frac{\partial \phi}{\partial \beta} = 0$ When it exists is called to sing. Drug. Deviation of partial D.F. 1) By elimination of constant; fot Φ (π,y,2,α,b) =0 -0 put on to be a ordation blu 8/19/2 involving. two constants axb. Durt 'N' & 'y' in O up get, 84 + 89 P =0 - (2) 39 + 30 9 -0 - 3 Part to make the party has a consistence of the sail and the

3) Eliminate to autibility funct. If from

$$f(x^2+y^2+z^2, x^2-2xy)=0$$
.

And $f(x^2+y^2+z^2, x^2-2xy)=0$.

And $f(x^2+y^2+z^2, x^2-2xy)=0$.

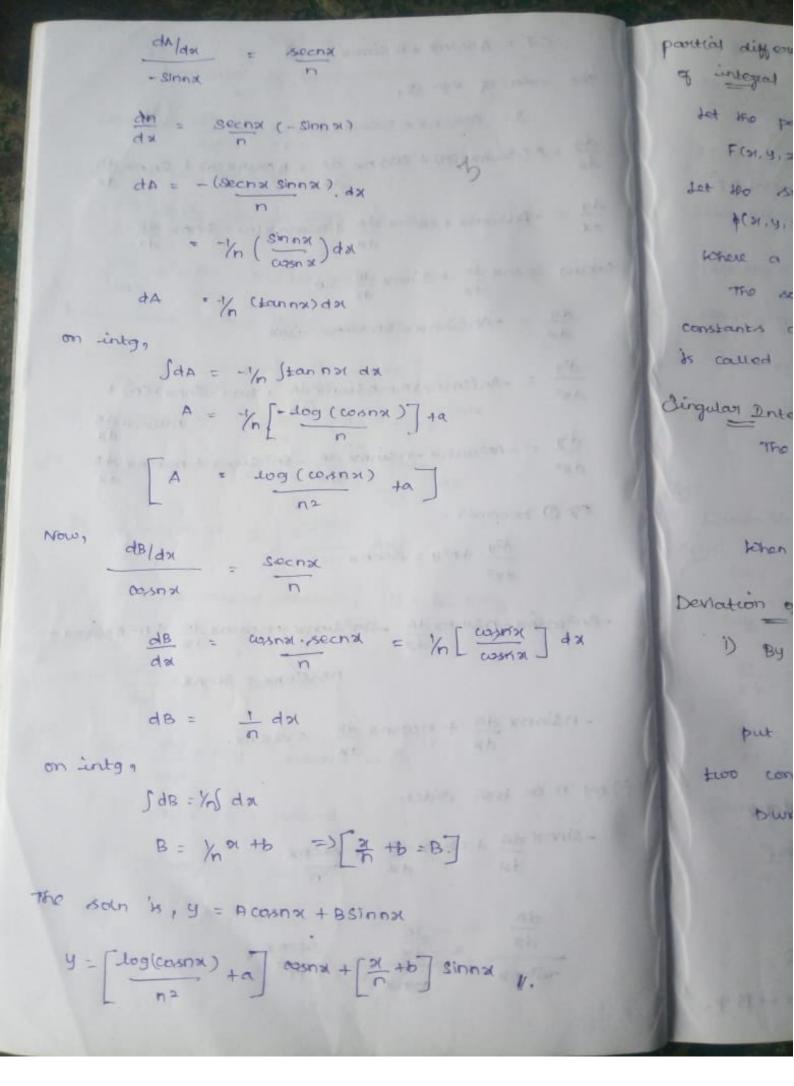
Down $f(x^2+y^2+z^2)=f(x^2-2xy)=0$.

 $f(x^2+y^2+z^2)=f(x^2-2xy)=0$.

 $f(x^2+y^2+z^2)=f(x^2-2xy)=0$.

 $f(x^2+y^2)=f(x^2-2xy)=0$.

 $f(x^2+y^2)=f(x^2-y)=f(x^2-y)=f(x^2-y)=$



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