Qun. $p^2x+q^2y=z$ ——— (1)

$$\frac{dx}{2px}=\frac{dy}{2qy}=\frac{dz}{2p^2x+2q^2y}=\frac{dp}{-p^2+p}=\frac{dq}{-q^2+q}$$

$$q=\left(\frac{b}{\sqrt{y}}+1\right)$$

$$dz=p\,dx+q\,dy \qquad a^2+b^2 \qquad F(x,y,z,a,b)$$

$$z=2a\sqrt{x}+x+2b\sqrt{y}+y+c \quad \text{——— (ii)} \qquad p=\left(\frac{a}{\sqrt{x}}+1\right)$$

Que. $z^2 = pqxy$ (1)

$$\frac{dx}{xyq} = \frac{dy}{xyp} = \frac{dz}{2xypq} = \frac{dp}{-pqy+2pz} = \frac{dq}{-pqx+2qz}$$

$$\frac{x\,dp + p\,dx}{+2pxz} = \frac{y\,dq + q\,dy}{+2qyz}$$

$$\frac{d(px)}{px} = \frac{d(qy)}{qy}$$

$$\frac{aqy}{x} = p$$

(1) $\Rightarrow$ $q = \frac{z}{y\sqrt{a}}$

$$p = \frac{za}{x}$$

$$dz = p\,dx + q\,dy.$$

$$\Rightarrow \quad = \frac{za}{x}\,dx + \frac{z}{ay}\,dy.$$

$$\Rightarrow \quad \frac{dz}{z} = \frac{a}{x}\,dx + \frac{1}{ay}\,dy.$$

On integrating, we get the sol^n.

Que: $(p+y)^2+(q+x)^2=1 \quad \text{——} \ (1)$

$$\boxed{dz = p\,dx + q\,dy}$$

$$\frac{dx}{2(p+y)} = \frac{dy}{2(q+x)} = \frac{dz}{2(p^2+q^2+py+qx)} = \frac{-dp}{2(q+x)} = \frac{-dq}{2(p+y)}$$

$$\frac{dx}{2\cancel{(p+y)}} = \frac{-dq}{2\cancel{(p+y)}}$$

$$dx + dq = 0$$

$$x + q = c \Rightarrow \boxed{q = c - x}$$

$(1) \Rightarrow$

$$(p+y)^2 + (c-\cancel{x}+\cancel{x})^2 = 1$$

$$(p+y)^2 = 1 - c^2$$

$\boxed{~~p = c - y~~}$

$$(p+y)^2 = 1 - c^2$$

$$p + y = (1-c^2)^{1/2}$$

$$\boxed{p = \sqrt{1-c^2} - y}$$

$$dz = \left(\sqrt{1-c^2} - y\right)dx + (c-x)\,dy.$$

$$= \sqrt{1-c^2}\,dx + c\,dy - (y\,dx + x\,dy)$$

$$= \quad '' \quad - d(xy)$$

$$\boxed{z = x\sqrt{1-c^2} + cy - xy + b.}$$

$$dz = p\,dx + q\,dy$$

$$\boxed{z = xy + ay - \cancel{bx}}$$

$\underline{\text{Que}}$ - $\boxed{z = pq}$.

$$\left(p = y - c\right)$$

$$\boxed{q = \frac{z}{y-c}}$$

$$\left(q = x - c_1\right)$$

Que- $pxy + pq + qy - yz = 0.$

$$\frac{dp}{0} = \frac{dx}{(\quad)}$$

$$dp = 0$$

$$\boxed{p = a}$$

$$q = \frac{y(z-ax)}{a+y}.$$

$$dz = p\,dx + q\,dy.$$

$$dz = a\,dx + \frac{y(z-ax)}{(a+y)}\,dy.$$

$$dz - a\,dx = \frac{y(z-ax)}{(a+y)}\,dy$$

$$\frac{dz - a\,dx}{z - ax} = \left(\frac{y}{a+y}\right)dy$$

$$= \left(1 - \frac{a}{a+y}\right)dy$$

On int. we get the soln.