Rule II

1. $\phi(x+y+z,\ x^2+y^2-z^2)=0$ 2. $x+y+z=f(x^2+y^2+z^2)$

3. $z=f(x^2-y^2)$ 4. $z=f(x^2+y^2)$ 5. $z=f(y/x)$

6. $z=x^n f(y/x)$ 7. $z=f(x^2-y)+g(x^2+y)$

8. $\phi(x^2+y^2+z^2,\ z^2-2xy)=0$ 9. $u=xy+f(x^2-y^2)$

Answers:

1. $(y+z)p-(x+z)q=x-y$ 3. $yp+xq=0$ 4. $yp-xq=0$

2. $(y-z)p+(z-x)q=x-y$ 5. $xp+yq=0$ 6. $xp+yq=nz$

7. $4x^3\frac{\partial^2 z}{\partial y^2}+\frac{\partial z}{\partial x}=x\frac{\partial^2 z}{\partial x^2}$ 8. $(p-q)z=y-x$

9. $x\frac{\partial u}{\partial y}+y\frac{\partial u}{\partial x}=x^2+y^2$