Assignment

I. Solve the following PDEs

1. $(mz-ny)p+(nx-lz)q=ly-mx$
2. $(x^2-y^2-z^2)p+2xyq=2xz$
3. $x(y-z)p+y(z-x)q=z(x-y)$
4. $(y+z)p+(z+x)q=x+y$

Answers:

1. $\phi(x^2+y^2+z^2, lx+my+nz)=0$
2. $\phi\left(x^2+y^2+z^2, \frac{y}{z}\right)=0$
3. $\phi\left(x+y+z, \frac{x^2}{2}+yz\right)=0$
4. $\phi\left(\frac{x-y}{y-z}, \frac{y-z}{\sqrt{x+y+z}}\right)=0$