工程數學 (四) - 偏微分方程作業二

8:20-10:10, Mar.10, 1998

I. Solve the PDE:

$$u_x^2 + u_y^2 = 1$$

by general nonlinear method of $F(x, y, u, p, q) = 0$ and method of complete integral with the Cauchy data

$$u(y^2, y) = y$$

Please plot the Monge cone.

II. Solve the PDE:

$$u_x u_y = 1$$

by general nonlinear method of $F(x, y, u, p, q) = 0$ and method of complete integral with the Cauchy data

$$u(s, s) = 2.5s$$

Please plot the Monge cone.

III. Solve the PDE:

$$u_x = u_y$$

by general nonlinear method of $F(x, y, u, p, q) = 0$ and method of complete integral with the Cauchy data

$$u(s, s) = 2s$$

Please plot the Monge cone.