

Math 3326
Spring Semester 2009

Problem Set #2

1. For each of the following first-order partial differential equations, find

(a) the characteristic equation and the characteristic curves, and

(b) the general solution (in terms of the variables x and y) :

(i) $3u_x + 5u_y - xyu = 0$

(ii) $u_x + 4u_y - xu = 0$

(iii) $u_x - xu_y = 4$

(iv) $u_x + yu_y + xu = 0$

(v) $xu_x + yu_y + 2 = 0$.