# Math 4315 - PDEs    Home Work 4

1. Solve the following PDEs by the method of characteristics (Charpit's method)

$$(i) \quad u_x^2 - 3u_y^2 - u = 0, \quad u(x,0) = x^2$$

$$(ii) \quad u_x^2 + u_y + u = 0, \quad u(x,0) = x,$$

$$(iii) \quad u_x^2 - u\, u_y = 0, \quad u(x,y) = 1 \text{ along } y = 1 - x$$

**Due**: Oct. 4, 2021.
**Test 1**: Oct. 8, 2021