

Exercise 6

Consider the equation $3u_y + u_{xy} = 0$.

- (a) What is its type?
- (b) Find the general solution. (*Hint:* Substitute $v = u_y$.)
- (c) With the auxiliary conditions $u(x, 0) = e^{-3x}$ and $u_y(x, 0) = 0$, does a solution exist? Is it unique?