

2.28 (1)

1 2.28 (1), §1 Asked

Given:

$$u_{xx} + (1 + y)^2 u_{yy} = 0$$

Asked: Reduce it to 2D canonical form.

2 2.28 (1), §2 Solution

$$u_{xx} + (1 + y)^2 u_{yy} = 0$$

$$\frac{dy}{dx} = \frac{b \pm \sqrt{b^2 - ac}}{a} = \pm i(1 + y)$$

Elliptic.

$$\frac{dy}{1 + y} = i dx \quad \ln |1 + y| - ix = \xi^*$$

$$\xi = \ln |1 + y| \quad \eta = -x$$