

2.22 (d)

1 2.22 (d), §1 Asked

Given:

$$u_{xx} + yu_{yy} = 0$$

Asked: Find the characteristics.

2 2.22 (d), §2 Solution

$$u_{xx} + yu_{yy} = 0$$

$$\frac{dy}{dx} = \frac{b \pm \sqrt{b^2 - ac}}{a} = \pm \sqrt{-y}$$

$$\frac{d-y}{\sqrt{-y}} = \pm dx \implies 2\sqrt{-y} = \pm(x - C)$$

$$y = -\frac{1}{4}(x - C)^2$$

