Exercise 9

Solve $u_{xx} + u_{yy} = 0$ in the wedge $r < a,\ 0 < \theta < \beta$ with the BCs

$$u = \theta \quad \text{on } r = a, \quad u = 0 \quad \text{on } \theta = 0, \quad \text{and} \quad u = \beta \quad \text{on } \theta = \beta.$$

(*Hint:* Look for a function independent of r.)