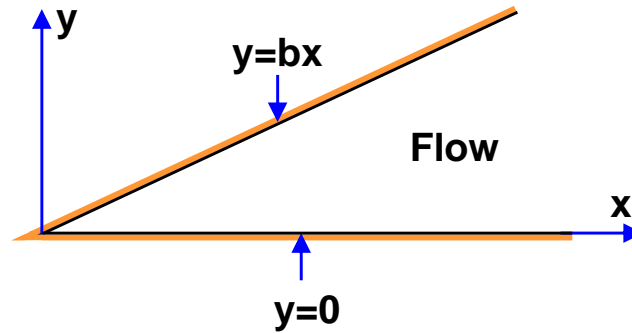


**Problem 115A**

A planar, incompressible flow within a wedge-shaped region bounded by solid walls at  $y = 0$  and  $y = bx$  has a velocity,  $u$ , in the  $x$  direction given by  $u = A(y - ax)$  where  $A$  and  $a$  are constants:



Find expressions for the streamfunction,  $\psi$ , and the velocity,  $v$ , in the  $y$  direction. Determine the relation between  $a$  and  $b$ . Sketch some of the streamlines of the flow.

[Do **not** use the no-slip condition which is violated in the above problem. Later, in class, we shall discuss the issues associated with the no-slip condition.]