

**Problem 119A**

Three different incompressible planar potential flows are described by the following streamfunctions:

$$(a) \quad \psi = Axy \quad (b) \quad \psi = A(x^2 - y^2) \quad (c) \quad \psi = A(x^2y - y^3/3)$$

where  $A$  is a constant. Show that each of these is a potential flow and find expressions for  $u$ ,  $v$  and  $\phi$  in each case. Assume, for convenience, that  $\phi = 0$  at the origin. Make rough sketches for each of these flows showing the form of the streamlines and equipotentials.