Determination of some solutions of the 2D stationary Navier-Stokes equations

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The following system of partial differential equations are examined:

$$\begin{cases} \frac{P_x}{\mu} + uu_x + vu_y = \lambda \triangle u + F_x \\ \frac{P_y}{\mu} + uv_x + vv_y = \lambda \triangle v + F_y \\ u_x + v_y = 0 \end{cases} \tag{1}$$

$P = P(x, y);\ u = u(x, y);\ v = v(x, y);\ F = F(x, y);\ u_x = \frac{\partial u}{\partial x};$
$\triangle u = u_{xx} + u_{yy};\quad x, y \in \mathbb{R}.$

The system (1) describes the process of plane stationary flow of a liquid or gas. This system represents the Navier-Stokes equations in the case of 2D stationary motion of a viscous incompressible fluid. The P function represent the pressure of the liquid, and u, v functions represent the flow of the liquid or gas, F represents the external forces. The constants $\lambda > 0$ and $\mu > 0$ is a determined parameter of the studied liquid's (of the gas) viscosity and density. We mention here that $a = \dfrac{c}{R_e}$, $c > 0$, where R_e is the Reynolds number.

Applying the method of separation of variables, a series of solutions is determined of system (1).