6. $\dfrac{\partial^2 u}{\partial x^2}+\dfrac{\partial^2 u}{\partial y^2}=uf(u^n w^m),\quad \dfrac{\partial^2 w}{\partial x^2}+\dfrac{\partial^2 w}{\partial y^2}=wg(u^n w^m).$

Solution in the form of the product of functions with different arguments:

$$u=e^{m(a_1x+b_1y)}\xi(z),\qquad w=e^{-n(a_1x+b_1y)}\eta(z),\qquad z=a_2x+b_2y,$$

where a_1, a_2, b_1, b_2 are arbitrary constants, and the functions $\xi=\xi(z)$, $\eta=\eta(z)$ are determined by the system of ordinary differential equations

$$(a_2^2+b_2^2)\xi''_{zz}+2m(a_1a_2+b_1b_2)\xi'_z+m^2(a_1^2+b_1^2)\xi=\xi f(\xi^n\eta^m),$$
$$(a_2^2+b_2^2)\eta''_{zz}-2n(a_1a_2+b_1b_2)\eta'_z+n^2(a_1^2+b_1^2)\eta=\eta g(\xi^n\eta^m).$$

