Problem:

Find the general solution of the differential equation:

$\sqrt{y}dx + \sqrt{x}dy = 0.$

Solution:

$\sqrt{y}dx + \sqrt{x}dy = 0$ this is a differential equation with separable variables.

$$\frac{dy}{\sqrt{y}} = -\frac{dx}{\sqrt{x}}, \qquad \int \frac{dy}{\sqrt{y}} = -\int \frac{dx}{\sqrt{x}}, \qquad 2\sqrt{y} = -2\sqrt{x} + C,$$

$y = \left(-\sqrt{x} + C_1\right)^2$ is the general solution of the equation. (C_1 is the arbitrary constant).