

$$\begin{aligned}y' &= \frac{x-y}{x-2y} \\xy' - 2yy' &= x-y \\xy - \int y \, dx - y^2 &= \frac{x^2}{2} - \int y \, dx + C \\y^2 - yx + \frac{x^2}{2} + C &= 0 \\y &= \frac{x}{2} \pm \sqrt{\frac{x^2}{4} - \frac{x^2}{2} - C} \\y &= \frac{1}{2}(x \pm \sqrt{C - x^2})\end{aligned}$$