

Some problems.

1. $(x - y)dx + xdy = 0$
2. $(x + y)dx + xdy = 0$
3. $x dx + (y - 2x)dy = 0$
4. $ydx = 2(x + y)dy$
5. $(y^2 + yx)dx - x^2dy = 0$
6. $xy' = (y - x)^2 + y$
7. $-ydx + (x + \sqrt{xy})dy = 0$
8. $y' = \cos\left(\frac{y}{x}\right) + \frac{y}{x}$

Some solutions.

1. $y + x \ln|x| = cx$
2. $y = \frac{c^2 - x^2}{2x}$
3. $(x - y) \ln|x - y| = y + c(x - y)$
4. $\frac{y^2}{2y+x} = c$
5. $x + y \ln|x| = cy$
6. $y = x - \frac{x}{x+c}$
7. $4x = y(\ln|y| - c)^2$
8. $\frac{1}{x} \sec\left(\frac{y}{x}\right) + \frac{1}{x} \tan\left(\frac{y}{x}\right) = c$