

## HOMEWORK 2-PART B+C

1. Check that  $\frac{2u}{u^2+v^2}du + \frac{2v}{u^2+v^2}dv = 0$  is exact or not. If so, solve it.
2. Check that  $(x^2y^2 - 1)ydx + (1 + x^2y^2)xdy = 0$  is exact or not. If not, if we multiply  $u(x, y) = \frac{1}{xy}$  on the whole equation, is it exact? If so, solve it.
3. Check that  $(y^2 - xy)dx + x^2dy = 0$  is exact or not. If not, if we multiply  $u(x, y) = \frac{1}{xy^2}$  on whole equation, is it exact? If so, solve it.