Coursework 3 of 3

1. Solve the following equations with ***Bernoulli***!

   1. $y\ln(y)\,dx + [x - \ln\ y\ ]dy = 0$

   2. $\tan(y)\dfrac{dy}{dx} + \tan(x) = \cos(y)\cos^2(x)$

2. Solve the following equations by ***Exact***!

   1. $2xy + e^y\ dx + \ x^2 + xe^y\ dy = 0$

   2. $x^2 + 2ye^{2x}\ dy + (2xy + 2y^2e^{2x})dx = 0$

3. Solve the following equations by ***Non-Exact***!

   1. $xy^3 + y\ dx + 2\ x^2y^2 + x + y^4\ dy = 0$

   2. $x - y^2\ dx + 2xy\ dy = 0$

4. Write the whole algorithm of solving ODE from variable separation to non-exact ***with your own word as detail as possible***