Applications of Bernoulli equation

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Read notes:
(A) Bernoulli equations:
http://www.cwru.edu/artsci/math/gurarie/classes/224/Notes/multipliers%20and%20Bernoulli.pdf;
(B) projectile flight: http://www.cwru.edu/artsci/math/gurarie/classes/224/Notes/flight-w-fric.pdf.
The project has 3 parts:
1) Algebraic part: solve problems 1-2 on p.3 of notes (A). Derive and explain solution formulae.
2) Projectile motion: apply problem 2 (above), to solve problem 3, i.e. compute functions $\{v(t), \theta(t)\}$ - speed/angle
3) Use formulae of part 2) + integration or NDSolve in Mathematica, to compute numerically possible trajectories of projectile (x(t),y(t)) with initial position (x ,y)=(0,0), several values of initial speed v_0 ={…}, and initial angle θ_0 = {…}. Hint:

$x(t) = v(t)*\cos(\theta(t))$
$y(t)= v(t)*\sin(\theta(t))$

Plot those trajectories and compare them to 'frictionless' trajectories.
4) (Extra credit) Problem 4 in notes (A): logistic population with time dependent carrying capacity