

1. By hand, sketch the direction field for $y' = x - y^2$ in the rectangle $-4 \leq x \leq 4$ and $-2 \leq y \leq 2$. For full credit, you should make a table like the ones we made in class that gives the numerical values of the slopes at each point. Then sketch the solution curves with initial conditions $y(0) = 0$ and $y(0) = 1$.
2. Section 1.3 Problems 1. Use the Octave program `df` or the online program `df field` to print out the direction field. Then sketch the indicated solution curves by hand. Do not use Octave to generate the solution curves; you need to learn to visualize the curves without using a computer!
3. Section 1.3 Problem 3. Same instructions as problem 2 above.
4. Section 1.3 Problem 8. Same instructions as problem 2 above.
5. Section 1.3 Problems 12, 13, and 14, modified as follows. Decide if you can use Theorem 1 to conclude that there exists a solution of the given initial value problem. Answer True or False, and give a brief justification to any False answers.
6. Section 1.4 Problem 3 (Do not start this one until after Monday's lecture)
7. Section 1.4 Problem 20 (Do not start this one until after Monday's lecture)