## WORKSHEET

1. What is a solution of a differential equation?

2. What is the general solution of a differential equation?

3. What is a first order initial value problem?

4. What is the solution of an initial value problem?

5. How many solutions can an initial value problem have?

6. How do we check whether a certain function $y = f(x)$ is a solution of a given differential equation?

7. What is an equilibrium solution?

8. How do we find an equilibrium solution?

9. How do you recognize a separable differential equation?

10. What are the steps that you take to solve a separable differential equation?

11. How do you recognize a linear differential equation?

12. What are the steps that you take to solve a linear differential equation?

13. Solve:

   (a) $y' = y + x$ $\qquad\qquad$ $y(0) = 1$;
   (b) $xy' + y = \sqrt{x}$.