

Math 1b. Lecture 28  
Qualitative Analysis of  $dy/dt = f(y)$

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## 1 Goals

- To understand and be able to find equilibrium solutions for autonomous differential equations.
- To understand and be able to determine the stability of equilibrium solutions for autonomous differential equations.
- To understand and be able to draw the phase line for an autonomous differential equation and be able to use this information to sketch solutions of equations of the form  $dy/dt = f(y)$ .

## References

- §7.2 in James Stewart. *Single Variable Calculus: Concepts & Context*, third edition. Brooks/Cole, Belmont CA, 2005. ISBN 0-534-41022-7.
- §31.3 in Robin J. Gottlieb. *Calculus: An Integrated Approach to Functions and Their Rates of Change*, preliminary edition. Addison Wesley, Boston, 2002. ISBN 0-201-70929-5.

## Notes

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