MATH 246: Chapter 0,1 Things to Know
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1. The basic definitions associated to differential equations - linear, order, partial, etc.

2. Solving explicit DEs, interval of existence for these.

3. Solving linear first-orde DEs, getting to linear normal form, interval of existence, for these.

4. Separable DEs, constant solutions.

5. Autonomous DEs, phase-plane diagrams, drawing families of solutions, identifying properties of solutions from sketches, stability of constant solutions.

6. Contour plots, drawing, picking out solutions, identifying properties of solutions from plots.

7. Direction fields, drawing, picking out solutions, identifying properties of solutions from plots.

8. Population dynamics problems, setting up and solving.

9. Tank problems, setting up and solving.

10. Falling object problems, setting up and solving, finding terminal velocity.

11. Euler's method (memorize), Runge-Midpoint and Runge-Trapezoid (formulas would be given).

12. Exact DEs, determining exactness, solving, determining and using integrating factors.

13. Implicit versus explicit solutions.

14. General vesus specific solutions, initial value problems.