Recitation worksheet
ODEs via integration

Math 51 Spring 2022

2022-01-27

1 Recall the material discussed in lectures

Namely, separation of variables and first order linear ODEs

I had several questions after the lecture on Monday about the "constant solutions" arising in separation of variables.

(Namely, the solutions $x(t) = r$ for the ODE $x' = f(x)g(t)$ where r is a solution to $f(x) = 0$.)

2 Applications/examples

I suggest that we use §1.4 in the text as a source of applications/examples. In particular, we can present the following models given by first-order linear equations.

- Newton's Law of Cooling (p. 30-31), and
- the Kirchoff's Law application on (p. 32-33)

3 Integrating factors

Explain the "alternative approach" to solving first-order linear ODEs described on (Nitecki and Guterman 1992, sec. 1.3, p. 28)

Bibliography

Nitecki, Zbigniew, and Martin Guterman. 1992. Differential Equations: A First Course. Saunders.