

Homework 10, due November 7

1. Find the Jordan canonical form of $\begin{pmatrix} 5 & -1 \\ 1 & 3 \end{pmatrix}$.
2. Use the result of the previous problem to solve the system

$$\begin{aligned}\frac{dx}{dt} &= 5x - y, \\ \frac{dy}{dt} &= x + 3y.\end{aligned}$$