Math 33b, Winter 2013, Tonći Antunović - Homework 10 (don't hand in)

From the textbook solve the problems:

Section 9.6: 2, 4, 10, 20, 22, 24, 26, 28, 30, 36, 38, 40, 46

And also the problems below:

Problem 1. If matrices A and B commute, show that matrices e^A and e^B commute.

Problem 2. Let A be a matrix and v a vector such that $Av \neq 0$ and $Av \neq v$. If $A^2v = Av$ find two real eigenvalues of A.

Problem 3. If an $n \times n$ matrix A has no real eigenvalues, show that the n is even.