MAT 149A University of California Winter 2006

Homework 8

due Wednesday March 8 in class

1. Biggs 27.1 # 3 page 392

2. Biggs 27.1 # 4 page 392

3. Biggs 27.2 # 1 page 395

4. Biggs 27.2 # 4 page 395

5. In the RSA encryption system choose $n = 65$. Find the decryption key d for $e = 5$ and for $e = 7$. For $n = 33$ and $e = 3$ encrypt the message $M = 18$.

6. (a) Suppose you are handed the cheap rubik box in the following configuration:

18	15	16
17	14	2
3	13	1

front face

12	11	10
4	5	6
9	8	7

back face

Can you bring it back to the initial configuration by a finite sequence of simple moves?

(b) Now suppose that rotating the two central rectangles by 180^0 are also allowed moves. Can you reach the initial configuration in this case?

[Hint: Use Maple for this problem!!]