

Math 225, Sections M1

Homework 10

Due April 23, 2009, before class

Section 4.3 Suggested Problems: textbook pages 243 – 244 exercises:
1 – 3, 11, 13, 15, 19, 20 – 24.

Mandatory Problems: (turn them in) textbook pages 243 – 244
exercises: 4, 6, 8, 14, 16, 24.

Section 4.5 Suggested Problems: textbook pages 260 – 261 exercises:
1 – 5, 7, 9 – 11.

Mandatory Problems: (turn them in) textbook pages 260 – 261
exercises: 6, 8, 12.

Additional mandatory problem (turn it in) Let V be a n -dimensional
vector space, $n \geq 1$. Show that

- (i) any linearly independent set of exactly n vectors is a basis for V ;
- (ii) any set of exactly n vectors that spans V is a basis for V .

(Hint: This is a generalization of the result that says that if an $n \times n$ matrix has linearly independent columns then the columns span \mathbb{R}^n and if the columns of an $n \times n$ matrix span \mathbb{R}^n then the columns must be linearly independent, see the inverse matrix theorem.)