

Math 316 Homework 9 and Exam II information

Homework 9 due Wednesday, 03/29:

Section 7.1 True/False Questions (2-13)*;

Exercises 2(a*, **b**), 3*, 4, 5*, 6, 9*, 11*, 12(a)*, 14(a,b), 15*, 17.

- Find the fifth roots of unity and mark them on the complex plane.
- Find all solutions of $z^4 = -6i + 6$ and mark them on the complex plane.
- Let \mathbf{u} and \mathbf{v} be complex vectors satisfying $\mathbf{u} \cdot \mathbf{v} \neq 0$, and let c be a complex number. Give a necessary and sufficient condition for $(c\mathbf{u}) \cdot \mathbf{v} = \mathbf{u} \cdot (c\mathbf{v})$. Explain.

Exam II Information. The exam will be on **Wednesday, March 29.**

It will cover the following topics:

- 5.3 Coordinates of a vector. Matrices of a linear transformation.
- 5.4 Changing coordinates.
- 3.4 Diagonalizable matrices.
- 7.4 Orthogonal diagonalization of real symmetric matrices.
- 7.1 Complex numbers and complex vectors.

The exam will contain short-answer questions, problems where proofs or explanations are required, and computational problems. Most of the problems on the test will be similar to homework problems (so go over these problems as needed). It is also important to know the definitions and properties discussed in the course.

In addition, you may solve the following problems:

p. 329 Ex. 6(a); p. 332 Ex. 7, 8; p. 455-456 Ex. 4, 5, 12.

No books, notes, or calculators are allowed on the test.