

Math 450 Winter 2017

Homework #11

You don't need to return the question with * sign.

- (*) Read 21.5 , 22.1-22.6
- (*) Exercises 21.4 Questions 1-6
- (1) Exercises 20.4 Question 5a, 6,
- (2) We are interested in solving

$$u_{xx} + u_{yy} - \gamma(x, y)u = 0$$

where domain and boundary conditions are given in Figure 10, on page 1101. In order to use finite difference method, the domain is discretized by a mesh as in Figure 10. First formulate the unknowns, then work out the algebraic equations (similar to the equation (5) in section 20.5). How many unknowns does your system have? How many equations did you find? Write the matrix form of your system. (Do not solve)

- (3) Exercises 21.4 Questions 5e, 6f, 7
- (4) Exercises 21.4 Questions 8h, 9h, 10
- (5) Exercises 21.4 Question 13