

## HOMEWORK #18 (M427K FALL 2004)

### INTRODUCTION

More problems from the book. Page 240 #1,5,7,13

1. PG 240 #1

Solve by variational parameters the differential equation

$$y''' + y' = \tan t \quad 0 < t < \pi$$

2. PG 240 #5

Solve by variational parameters the differential equation

$$y''' - y'' + y' - y = e^{-t} \sin t$$

3. PG 240 #7

Solve by variational parameters the differential equation

$$y''' - y'' + y' - y = \sec t \quad -\pi/2 < t < \pi/2$$

4. PG 240 #13

Given that  $x$ ,  $x^2$ , and  $1/x$  are solutions of the homogeneous equation (RHS=0) corresponding to the differential equation

$$x^3 y''' + x^2 y'' - 2xy' + 2y = 2x^4 \quad x > 0$$

determine a particular solution (using variational parameters).