

Homework 3

Exercise 1 Section 7.1: 2, 4, 10.

Exercise 2 Section 7.2: 3, 4, 5, 6, 10, 22, 24.

Exercise 3 Section 7.3: 2, 4, 12, 14, 44, 48.

Exercise 4 Solve the following first-order equations

(a)

$$y'(x) + y(x) = e^{-2x}$$

(b)

$$y'(x) + 2y(x) = x$$

(c)

$$y'(x) + 3x^2y(x) = e^{-x^3}$$

(d)

$$y'(x) - 2xy(x) = \sin(x)$$

(e)

$$y'(x) + \frac{1}{x}y(x) = \frac{1}{x^2}, \quad x > 0.$$

Exercise 5 Problems from Notes on Second-Order Differential Equations (available on course webpage): 1, 3, 9, 11, 14, 15.