Review

1. Solve the system

$$x_1' = -2x_1 + x_2$$
$$x_2' = x_1 - 2x_2.$$

2. Solve the system

$$x_1' = x_1 + 3x_2$$
$$x_2' = 3x_1 - x_2.$$

3. Solve the initial value problem

$$x_1' = 5x_1 - x_2$$
$$x_2' = 3x_1 + x_2.$$

$x_1(0) = 2, x_2(0) = -1.$

4. Solve the initial value problem

$$x_1' = -2x_1 + x_2$$
$$x_2' = -5x_1 + 4x_2.$$

$x_1(0) = 1, x_2(0) = 3.$

5. Solve the initial value problem

$$x_1' = x_1 - 5x_2$$
$$x_2' = x_1 - 3x_2$$

$x_1(0) = 1, \quad x_2(0) = 1.$

6. Solve the initial value problem

$$x_1' = -3x_1 + 2x_2$$
$$x_2' = -x_1 - x_2$$

$x_1(0) = 1, \quad x_2(0) = -2.$

7. Solve the system of differential equations

$$x_1' = 3x_1 + 9x_2$$
$$x_2' = -x_1 - 3x_2$$

8. Solve the system of differential equations

$$x_1' = 3x_1 - 4x_2$$
$$x_2' = x_1 - x_2$$

9. Solve the system of differential equations

$$x_1' = -x_2$$
$$x_2' = x_1.$$

10. Solve the initial value problem

$$x_1' = 2x_2$$
$$x_2' = -2x_1.$$

$x_1 = 1, x_2 = 2.$

11. Solve the system of differential equations

$$x_1' = x_1 - x_2 + e^t$$
$$x_2' = x_1 + 3x_2 + 3e^t,$$

12. Solve the initial value problem

$$x_1' = x_1 + x_2 + t$$
$$x_2' = 4x_1 + x_2 + 1,$$

$x_1(0) = 3, x_2(0) = 4.$