

# Differential Equations 244

## Homework for Exam 1

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### 2.1 First Order Linear Equations

1, 6, 12, 16, 19

### 2.2 Separable Equations

6, 8, 14, 15, 16, 18, 20, 33, 36

### 2.6 Exact Equations, Integrating Factors

2, 3, 9, 11, 15, 16, 26, 28, 29

Solve  $y(1+x)dx + 2x dy = 0$ ,  $y(1) = -3$  by finding  $\mu = y^a e^{bx}$  to make the equation exact.

### 2.3 Modeling with First Order Equations

14, 15, 18

### 2.5 Autonomous Equations

2, 3, 6, 8, 13, 22

### 2.8 Existence and Uniqueness Theorem

3, 6, 8, 11

### 3.1 Homogeneous Equations

5, 7, 13, 14, 23, 24, 28, 42

### 3.4 Complex Roots of the Characteristic Equation

11, 16, 19, 25, 26

### 3.5 Repeated Roots, Reduction of Order

5, 13, 15, 23, 24, 28

### 3.6 Method of Undetermined Coefficients

1, 4, 7, 12

### 3.7 Variation of Parameters

4, 5, 9, 10, 14, 17