

### HOMEWORK 3

- Section 2.6 in the book: Exercises 10, 12, 20, 26, 28, 30.
- Section 2.7 in the book: Exercises 8, 10, 30, 32.

**Problem 1.** Show that the following differential equation is exact

$$y + x \frac{dy}{dx} = 0.$$

Find an *explicit* formula for the solution  $y(x)$ . What is the interval of existence of the solution?