Exercise 1. Textbook exercise A.6.8. In part (c), instead find a closed form expression for the coefficients in both solutions. Moreover, use the series expansions

$$\cosh x = \sum_{n=0}^{\infty} \frac{x^{2n}}{(2n)!}, \quad \sinh x = \sum_{n=0}^{\infty} \frac{x^{2n+1}}{(2n+1)!}$$

to express the solutions in terms of "familiar" functions.

Exercise 2. Textbook exercise A.6.14

Exercise 3. Textbook exercise A.6.19

Exercise 4. Textbook exercise A.6.37(a)-(c)