Chapter 1
§1.2: Pbs 7, 10;
§1.3: Pbs 1, 3 and 5.

Chapter 2
§2.1: Pbs 6 and 7;
§2.2: Pb 5; HW4 #1;
§2.3: Pbs 7 and 8;
§2.4: Pbs 15, 16, and 18.

Chapter 3
§3.1: Pbs 2 and 3;
§3.2: Pbs 2 and 3;
§3.3: Pb 2.

Chapter 4
§4.1: Pbs 4 and 6;
§4.2: Pbs 1 and 4;
§4.3: Pb 11.

Chapter 5
§5.1: Pbs 3 and 9;
§5.2: Pbs 4, 5, 6, 10, and 15;
§5.3: Pbs 5 and 10;
§5.4: Pbs 3 and 8;
§5.5: Pb 3 and 5.

Chapter 6
§6.1: Pbs 6, 9, and 10;
§6.2: Pbs 4 and 7;
§6.3: Pbs 1 and 2;
§6.4: Pb 3.
Pb1. Prove that second order centered differences are second order accurate, namely

\[
\frac{u(x_{j-1}) - 2u(x_j) + u(x_{j+1})}{\Delta x^2} - u''(x_j) = C\Delta x^2 u^{(4)}(\xi),
\]

and find explicitly the numerical constant \( C \). Hint: use Taylor expansion around \( x = x_j \).

§8.2: Pb 11.

§8.4: Pb 3.