1. From the Textbook, Chapter 2, 2.10.

2. Prove the following properties of the Laplace transform ($F(s) = \mathcal{L}\{f(t)\}$):
   - Scaling:
     \[
     \mathcal{L}\{f(at)\} = \frac{1}{a}F\left(\frac{s}{a}\right),
     \]
     for a real $a > 0$.
   - Multiplication by $t$:
     \[
     \mathcal{L}\{tf(t)\} = -\frac{d}{ds}F(s).
     \]

3. From the Textbook, Chapter 3, 3.1.

4. From the Textbook, Chapter 3, 3.2.

5. From the Textbook, Chapter 3, 3.3, where you can assume $f(t) = 0, t < 0$. Only consider the cases where $t_0 > 0$.

6. From the Textbook, Chapter 3, 3.4.

7. From the Textbook, Chapter 3, 3.22 (i). (Hint: write $y(t)$ as a convolution integral, $y(t) = h(t) * x(t)$.)