

1. Chapter 4, Problem 4.1-1.
2. Chapter 4, Problem 4.1-4, Part (a).
3. Chapter 4, Problem 4.1-5, Part (a).
4. Chapter 4, Problem 4.1-6, Part (a).

Hint: Use the formula (see page 48 of textbook)

$$\int x^2 e^{\alpha x} dx = e^{\alpha x} \left( \frac{x^2}{\alpha} - \frac{2x}{\alpha^2} + \frac{2}{\alpha^3} \right)$$

5. Chapter 4, Problem 4.1-7, Part (a).

Hint: Use the formula (see page 48 of textbook)

$$\int e^{\alpha x} \cos \beta x dx = \frac{e^{\alpha x}}{\alpha^2 + \beta^2} (\alpha \cos \beta x + \beta \sin \beta x)$$

6. Chapter 4, Problem 4.2-2.

See page 245 of your textbook for the definition of  $\text{rect}(x)$ .

7. Chapter 4, Problem 4.2-3.
8. Chapter 4, Problem 4.2-4.