

- 1a** = Problem **4** of Section 4.7 in the textbook.
- 1b** = Problem **24** of Section 4.7 (not both these kinds of problems, rather one, in the spirit of this Section).
- 2** Find the Laplace transform of the following functions:
- a. = Problem **10** of Section 5.1.
 - b. = Problem **29** of Section 5.1.
 - c. = Problem **31** of Section 5.2.
- 3** Using the table of the Laplace transform and the properties of this transform and its inverse, find the inverse Laplace transform $\mathcal{L}^{-1}(F)(t)$ of the functions defined for sufficiently large s by the following formulas:
- a. = Problem **2** of Section 5.3.
 - b. = Problem **11** of Section 5.3.
 - c. = Problem **17** of Section 5.3.
 - d. = Problem **25** of Section 5.3.
- 4** Using the Laplace transform, find the solution $y(t)$ of the initial-value problem of Problem **17** of Section 5.4.
- 5a** = Problem **29** of Section 5.5.
- 5b** Using the Laplace-transform method, find the solution of the system

$$\begin{cases} \frac{dx}{dt} = -y + \cos 2t, \\ \frac{dy}{dt} = x \end{cases}$$

with initial conditions $x(0) = y(0) = 0$.