

- 1.) Solving a linear first order equation. (Reference: Example 1 on page 51 and the homework pertaining to Section 2.3.)
- 2.) Solving a **nonhomogeneous** linear second order equation using the method of **undetermined coefficients**. (Reference: Examples 1–6 on pages 188–194 and homework for Section 4.4.)
- 3.) Solving a first order linear system. (Reference: Example 3 on page 265 and homework for Section 5.2.)
- 4.) An applied problem on spring-mass system. (Reference: Example 1 on pages 231–232 and homework for Section 4.9.)
- 5.) Solving an initial value problem for a second-order linear differential equation **using Laplace transform**. (Reference: Examples 1 and 2 on pages 403–405 and homework for Section 7.5.)
- 6.) Laplace transform of discontinuous functions and periodic functions. Inverse Laplace transforms involving discontinuous functions. (Reference: Examples 1–6 on pages 411–418 and homework for Section 7.6.)