

Elementary MATLAB Course

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Third Set of Optional Exercises

1. The table below presents the enthalpy of saturated steam versus temperature. Determine a 2nd-order polynomial that fits this enthalpy data and estimate the enthalpy at $T = 373.15\text{K}$ using the polynomial.

T (K)	Enthalpy (kJ/kg)
283.15	2519.9
303.15	2556.4
323.15	2592.2
363.15	2660.1
393.15	2706.0
403.15	2733.1

Figure 1- Enthalpy versus Temperature for saturated steam!

- Illustrate your fitted polynomial and table data into a single plot.
 - Never forget to use axis label, legend, and plot title.
2. The standard normal probability density function is a bell-shaped curve that can be represented as:
$$f(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}}$$
 - Generate a plot of this function from $z = -5$ to 5 . Label the ordinate as frequently and the abscissa as z .
 3. In a mechanical system, the displacement of a vibrating mass is modeled by the polynomial function $f(t) = 0.1t^3 - 0.6t^2 + 1.2t$, where t represents time in seconds and $f(t)$ represents displacement in meters. Determine the time(s) at which the displacement is zero, indicating the position of equilibrium.
(Hint: To find the time(s) when displacement is zero, solve the equation $f(t) = 0$ for t .)