Info 3

Introduction to MATLAB

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Homework 3

Instructions

- Submit your MATLAB code and results in a single script file named `hw3_yourName.m`.
- Include comments in your script explaining each step.
- Submit the obtained figures in a Word document named `hw3_yourName`.

Task 1: functions

1. Write a function to calculate the surface and the volume of a cone given by:

$$Cone\ surface = \pi r(r + l)$$

$$Cone\ volume = \frac{1}{3}\pi r^2 h$$

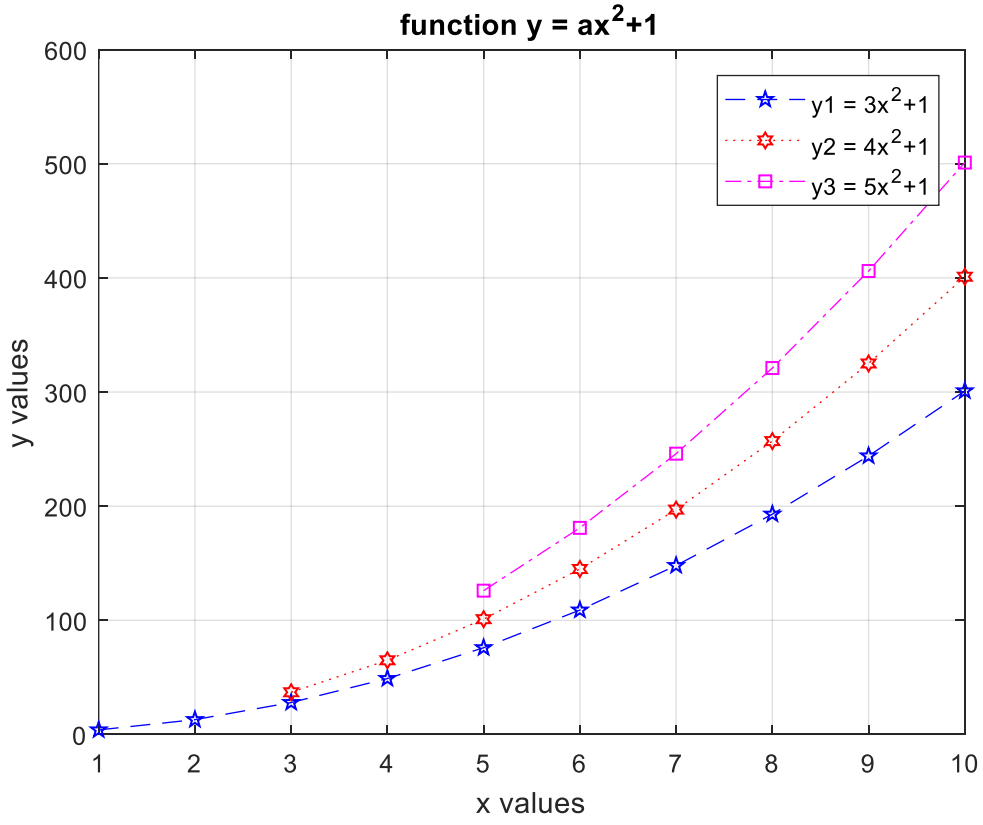
where
r is the radius of the cone base.
h is the height of the cone.
l is the slant height of the cone calculated using the Pythagorean theorem.

$$l = \sqrt{r^2 + h^2}$$

2. Using the developed function calculate the surface and the volume of the indicated cones below:
    1. Cone 1: $r = 5,\ h = 12.8$.
    2. Cone 2: $r = 8.5,\ h = 15.45$.
    3. Cone 3: $r = 80,\ h = 150.22$.

Task 2: Plots

1. Plot the function $y = x^2 - x + 1$ in the interval [-3 3] arranged by the step 0.5
2. Give the command lines to plot the following figure.



3. Replot the curves of the three functions in separate views.