

1. Determine the highest real root of

$$f(x) = x^3 - 6x^2 + 11x - 6.1$$

- graphically
 - using the Newton's Method
 - using bisection method
2. The volume of liquid V in a hollow horizontal cylinder of radius r and length L is related to the depth of the liquid h by

$$V = \left[r^2 \cos^{-1} \left(\frac{r-h}{r} \right) - (r-h) \sqrt{2rh - h^2} \right] L$$

Determine h given $r = 2 \text{ m}$, $L = 5 \text{ m}$, and $V = 8 \text{ m}^3$.

3. Use fixed-point iteration to solve the following equation with $x_0 = 1$.

$$x = 1 + 0.3 \sin x$$