

Homework S3

1. Problem 1, page 145 of the text.
2. (a) **Read** Problem 2, page 145 of the text.
(b) For the polynomial in part (c):

$$f(x) = x^4 + 4x^3 + x^2 - 6x + 2$$

find the four roots to three place accuracy, that is, isolate the four roots of f in intervals of length less than .001 whose centers are numbers of the form $n/1000$ where n is an integer. You will, no doubt, want to use a machine to help you with the calculations!!

3. Problem 3, page 145 of the text.
4. Problem 4, page 145 of the text.
5. Problem 5, page 145 of the text.
6. (a) Find a fixed point of $g(x) = (3x^2 - 4x + 2)/6$ in $[0, 1]$.
(b) Use the fact that $\cos(x)$ is decreasing on $[0, \pi]$ to show that there is exactly one fixed point of $h(x) = \cos(x)$ in $[0, 1]$ (recalling that x is measured in radians).
(c) Find the fixed point of $h(x) = \cos(x)$ in $[0, 1]$ to three place accuracy.