Sheet 1

1. Find the root of the following polynomial function using the bisection method:

   a) $x^3 - 4$.
   b) $x^3 - 3$.
   c) $x^3 - 5$.
   d) $x^3 - 3x - 5$.
   e) $x^2 - 5$.

2. Find $\sqrt{12}$ using the bisection method.

3. Find out after how many iterations the function

$$x^4 - x^3 - x^2 - 4$$

in the interval [1,9] reach to suitable root.

4. Find out after how many iterations the function

$$3x^2 - 5x - 2$$

in the interval [0,4] to get the solution of it.

5. Find the root of the equation

$$e^x = 4x^2$$

in the interval [4,5] by using fixed point iterative method up to 5 iterations.

6. Using the fixed-point iterative method to find the first approximation root of the equation up to 3 decimal places.

b) $2x^3 - 2x - 5 = 0$

c) $\cos x = 3x - 1$

d) $x^3 - x - 1 = 0$

e) $x^3 - 3x - 5 = 0$

f) $2x^3 - 7x^2 - 6x + 1 = 0$

7. Find $\sqrt[3]{13}$ using the Newton method.

8. Write the iterative formula to find the root of the equation $f(x) = x^3 - 5x + 7 = 0$ by the Newton method and use it to find this root.

9. Write the iterative formula to find the root of the equation $f(x) = e^x - 1$ by the Newton method and use it to find this root.

10. If the equation $sin(x) = x^2$ is solved by Newton method with the initial guess of $x = 1$. then the value of x after 2 iterations would be ..... .

WITH MY BEST WISHES

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