Ground Rules:

1. *Please return the answer script (print out of code/plot if needed) to Prof. Muthuramalingam by 1.10pm on February 2nd, 2005.*

2. *It is suggested that you spend the first 10 minutes in class reading the entire worksheet and thinking about how to solve the questions given. After which you are encouraged to work together but please write up your own individual solutions.*

3. *The problems in this worksheet are designed so that you will have just enough time to do the work so please do not waste time.*

<div align="center">

False Position or Regula Falsi

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Here is the algorithmic description of `Regula Falsi`.

Algorithm:
```
Input f Initialise n a b % such that f(a) and f(b) have
opposite signs and a < b
x(0)= a
x(1)= b
k =1
  while k <= n
     x(k+1) = x(k-1) - f(x(k-1)) x(k) - x(k-1)
                                 ─────────────
                                 f(x(k))-f(x(k-1))
       if sign(f(x(k+1))) = sign(f(a))
          a = x(k+1)
       elseif sign(f(x(k+1))) = sign(f(b))
           b = x(k+1)
       end     k = k +1
end
```

Solve the following Questions:

1. Describe what the algorithm is doing in words with the help of a picture.

2. Construct an example of f (picture is enough) such that $f(a) < 0$ and $f(b) > 0$. The above algorithm keeps b fixed and moves the left end point of interval closer to the root.

3. Compare with Bisection. Can you state a convergence result ?