ASSIGNMENT

1. **Primary drawback of Newton’s method**  
   Newton’s method requires forming and inverting the exact Hessian matrix at every iteration, an operation in dimensions that quickly becomes prohibitive for large-scale problems.
2. **The secant equation**
3. **How the secant equation builds the Hessian approximation**  
   The equation imposes a first-order consistency condition: the updated approximate Hessian (or its inverse) must exactly map the latest step to the observed gradient change , thereby allowing the matrix to be improved rank-one or rank-two at a time without ever computing second derivatives.