Curve-fitting, Gram-Schmidt, Q-R decomposition

1. Problem 54 of QN-LIST
2. Problem 65 of QN-LIST
3. Problem 66 of QN-LIST
4. Determine the matrices $Q, R$ in the $A = QR$ factorization of the matrix $A$ in the previous problem (Problem 66 of QN-LIST).
5. Problem 68 of QN-LIST