1. The monthly payment on a 30-yr mortgage of $100,000. for two different annual interest rates is given in Table 3.1 below. Use an interpolation formula in the form of Equation (3.2) to estimate the monthly payment corresponding to an interest rate of 8.25 % per year.

|  |
| --- |
| Data Point Number Annual Interest Rate Monthly Payment  k ik Ak = f(ik) |
| 0 7 % $ 665.30  1 10 % $ 877.57 |

Table 3.1 Monthly Payments for $100,000 30-yr Mortgage with Different Interest Rates: Two Data Points

1. Suppose we obtain two additional data points in the previous example dealing with the estimation of mortgage payments. The new data points correspond to 8 % and 9 % loans. Use one of the two additional points to obtain a second order interpolating polynomial. Estimate the monthly payment for an 8.25 % loan.

|  |
| --- |
| Data Point Number Annual Interest Rate Monthly Payment  k ik Ak = f(ik) |
| 0 7 % $ 665.30  1 10 % $ 877.57  2 8 % $ 733.76  3 9 % 0020$ 804.62 |