In this study, artificial neural network (ANN) models were developed to estimate monthly total rainfall (RMT) for Isparta. The rainfall data from Senirkent, Uluborlu, Eğirdir, Yalvaç and Isparta stations in Isparta, operated by the Turkish State Meteorological Service were used to estimate RMT. Also, multiple linear regression (MLR) models were developed using the same input parameters for rainfall estimation. The results of ANN and MLR models were compared with measured rainfall values to evaluate performance of the developed models. The comparisons showed that there was a good agreement between the ANN estimations and measured rainfall values.