Problem on linear regression

We wish to predict \( y \), winning speeds (in mile per hour) in a car race, given the year \( x \), by a linear regression \( y = \beta_0 + \beta_1 x + \epsilon \). The data for years one to ten are

\[
y = \{140.3, 143.1, 147.4, 151.4, 144.3, 151.2, 152.9, 156.9, 155.7, 157.7\}. 
\]

Assume normally distributed errors \( \epsilon_i \) in the regression model and address the following points.

- Find maximum likelihood estimates for \( \beta_0 \) and \( \beta_1 \) (that is least squares estimates).
- Assess the goodness of fit by computing the coefficient of determination \( R^2 \).
- Predict the winning speed for year \( x = 11 \) and provide a 95% prediction interval for your prediction.