Problem 3: Time spent by students on watching TV

The data in the `students.txt` file were gathered from 148 students who were enrolled in an introductory statistics course at a large university. This dataset includes various attributes, including gender, age (in years), height (in inches), the distance from a student's hometown to the university (in miles), the number of siblings, hours spent on a computer per week, hours dedicated to exercise per week, the count of music CDs owned, hours allocated to playing games per week, and hours dedicated to watching TV per week.

a) Formulate a linear regression model to predict the weekly hours spent on watching TV based on all the other variables. Provide estimates for the model unknowns.

b) Perform variable selection using the Lasso method, setting the regularization parameter to $\lambda = 0.3$. Identify and report the significant coefficients.

c) *For this question, the random state should be fixed by inserting* `set.seed(20231108)` *at the beginning of the code.*

   Optimize the regularization parameter λ through cross-validation within the interval [0.01, 10]. Report the optimal λ, the associated mean cross validation MSE (mean-squared error) and the value of the coefficients for the optimal lambda.