A picture containing logo

Description automatically generatedLinear Models

For this exercise, you will use some of R’s built-in data sets. You can view these with the command data().  
  
For each data set in the table below, create a linear model of the given variable, find its equation and produce a scatterplot of the data with a fitted line of regression.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dataset | Independent Variable | Dependent Variable |
|  | cars | speed | dist |
|  | women | height | weight |
|  | mtcars | wt | drat |
|  | iris | Petal.Length | Petal.Width |

|  |  |
| --- | --- |
| Equation of linear model |  |
| Scatterplot with fitted line |  |

|  |  |
| --- | --- |
| Equation of linear model |  |
| Scatterplot with fitted line |  |

|  |  |
| --- | --- |
| Equation of linear model |  |
| Scatterplot with fitted line |  |

|  |  |
| --- | --- |
| Equation of linear model |  |
| Scatterplot with fitted line |  |

**Useful R commands**

plot(X,Y,xlab="x-axis label",ylab="y-axis label", main="Scatterplot of Y on X",pch=21,bg="black") — produces a scatterplot of X vs Y with black dots of the type specified by ‘pch’

lm(Y~X) — fits a linear regression line to the data (lm command stands for linear model)   
  
abline(lm(Y~X)) — produces a scatterplot with the least squares linear regression line superimposed on the data