Práctica 2

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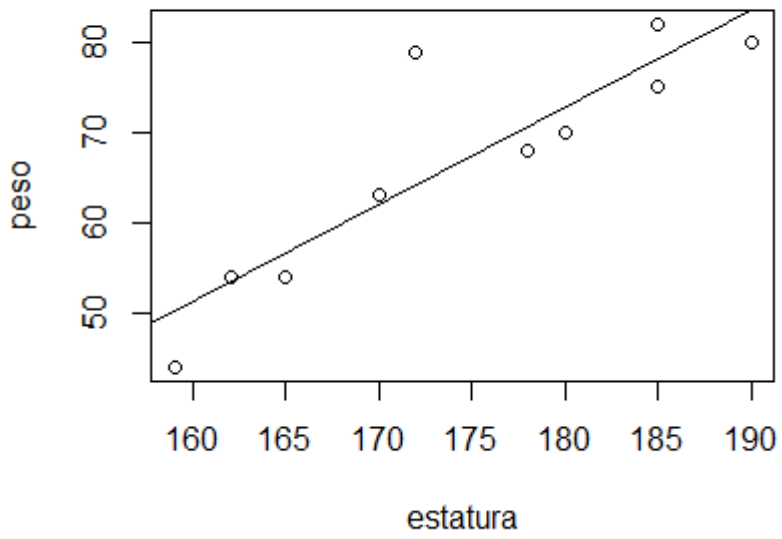
a. Calcular, usando la fórmula vista en teoría, la recta de regresión del Peso en función de la Estatura.

```
> peso = c(82, 75, 70, 68, 44, 63, 80, 79, 54, 54)
> estatura = c(185, 185, 180, 178, 159, 170, 190, 172, 162, 165)
> (b_estatura = cov(peso, estatura) / var(estatura))
[1] 1.075954
> (a_estatura = mean(peso) - b_estatura * mean(estatura))
[1] -120.9616
> plot(estatura, peso)
> abline(a=a_estatura, b=b_estatura)
```

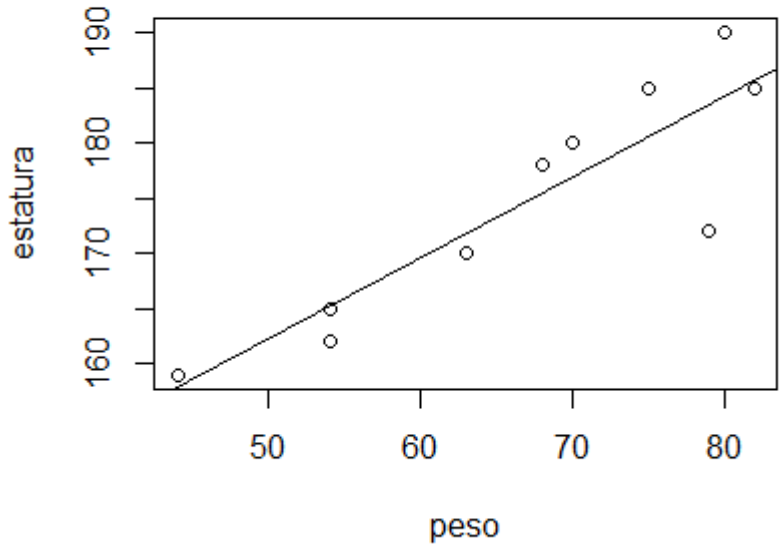
y = -120.9616 + 1.075954 * x



c. Realizar los pasos a) y b) pero calculando ahora la recta de regresión de la Altura en función del Peso

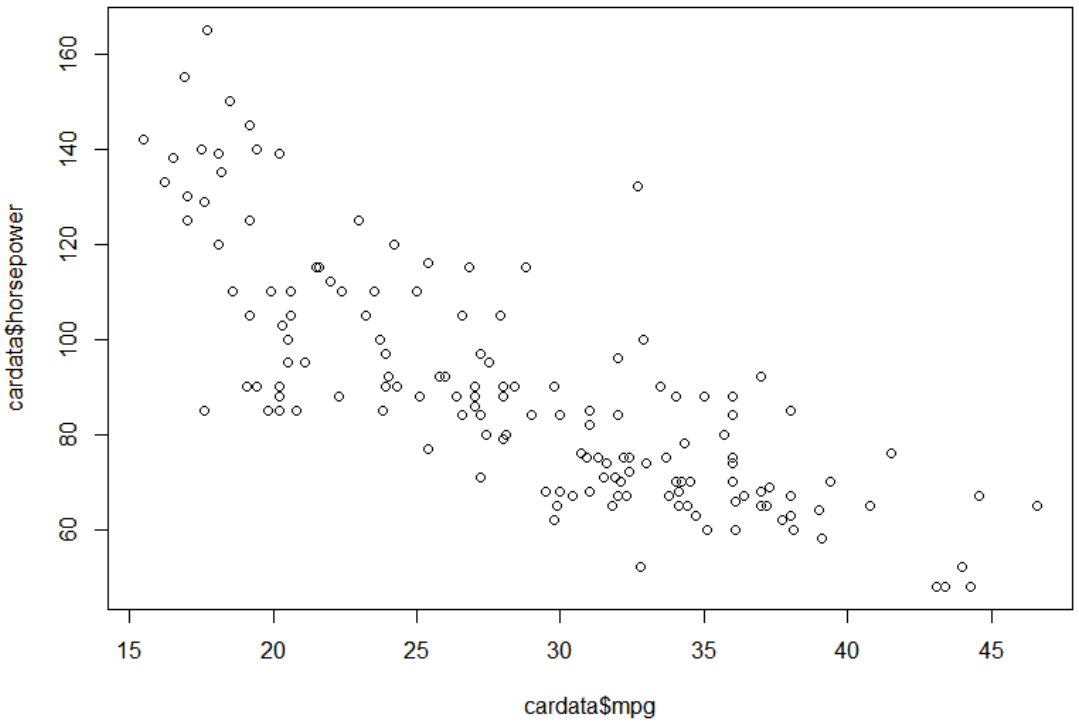
```
> (b_peso = cov(peso, estatura) / var(peso))
[1] 0.731554
> (a_peso = mean(peso) - b_peso * mean(estatura))
[1] -60.82932
> plot(estatura, peso)
> abline(a=a_peso, b=b_peso)
```

y = -60.82932 + 0.731554 * x



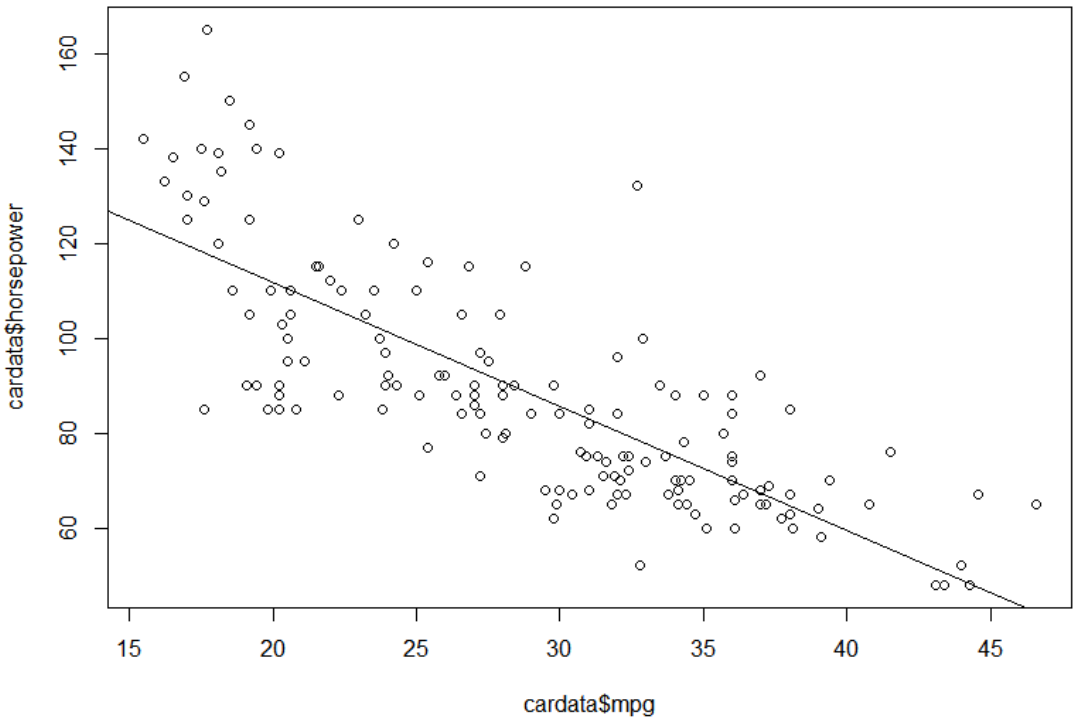
2. Dado el fichero cardata.sav utilizado en la práctica 1. Se pide, calcular gráficos de dispersión, rectas de regresión, coeficiente de correlación y gráficos de las rectas de regresión para los siguientes pares de valores:
a. Potencia (horsepower) en función del consumo(mpg)

```
> plot(cardata$mpg, cardata$horsepower)
```



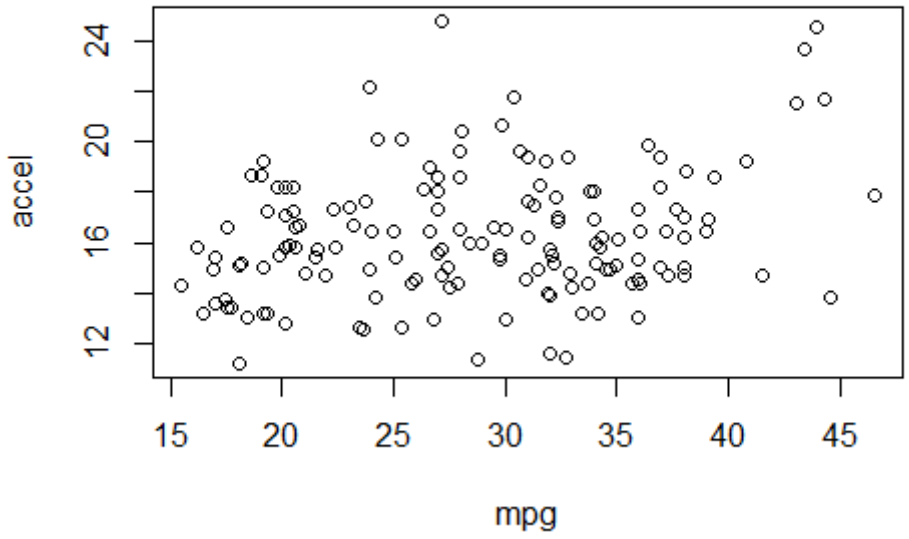

```
> (b_consumo = cov(cardata$mpg, cardata$horsepower) / var(cardata$mpg)
)
```

```
[1] -2.617174
> (a_consumo = mean(cardata$horsepower) - b_consumo * mean(cardata$mpg
))
[1] 164.0985

y = 164.0985 + -2.617174 * x


> (evau = cor(cardata$horsepower, cardata$mpg))
[1] -0.7887461

> abline(a=a_consumo, b=b_consumo)
```

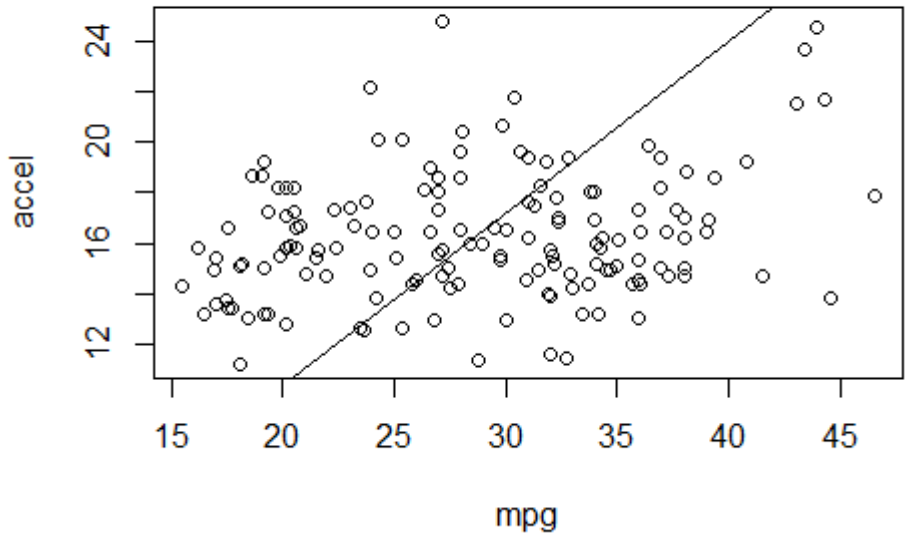


b. Aceleración (accel) en función del consumo (mpg)

```
> plot(mpg, accel)
```

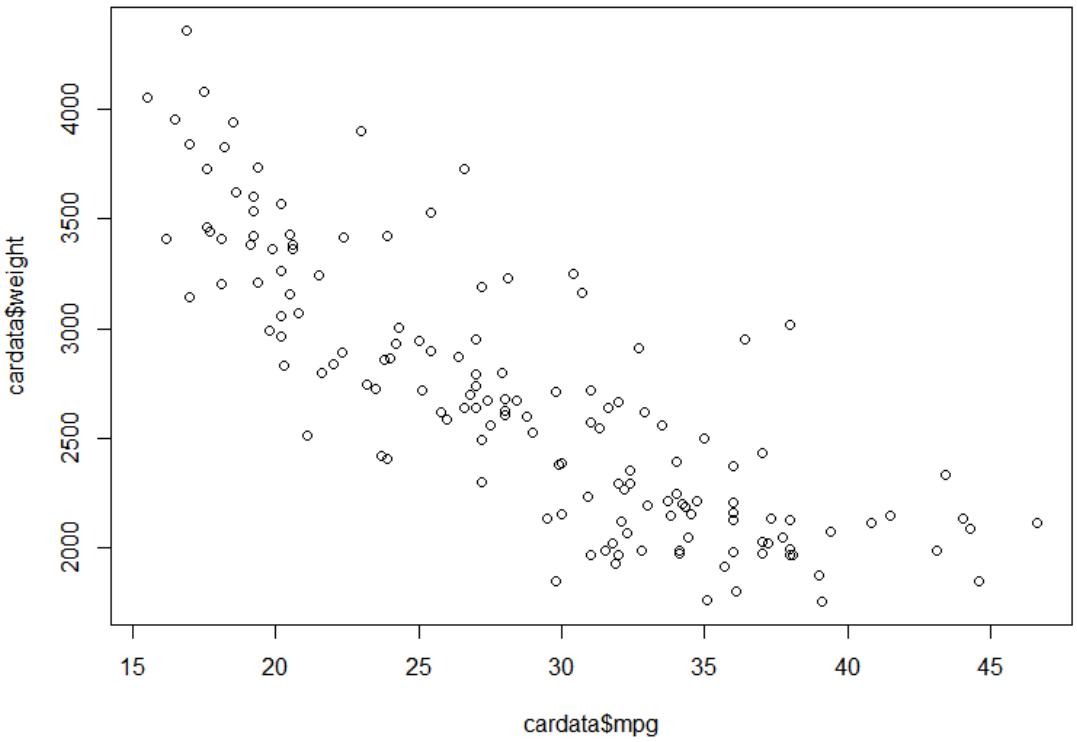



```
> b_accel_mpg = cov(mpg, accel)/var(mpg)
[1] 0.6832987
> a_accel_mpg = mean(accel)-b_accel_mpg*mean(mpg)
[1] -3.380138

> (r_accel_mpg = cor(accel,mpg))
[1] 0.2347268

> abline(a=a_accel_mpg, b=b_accel_mpg)
```

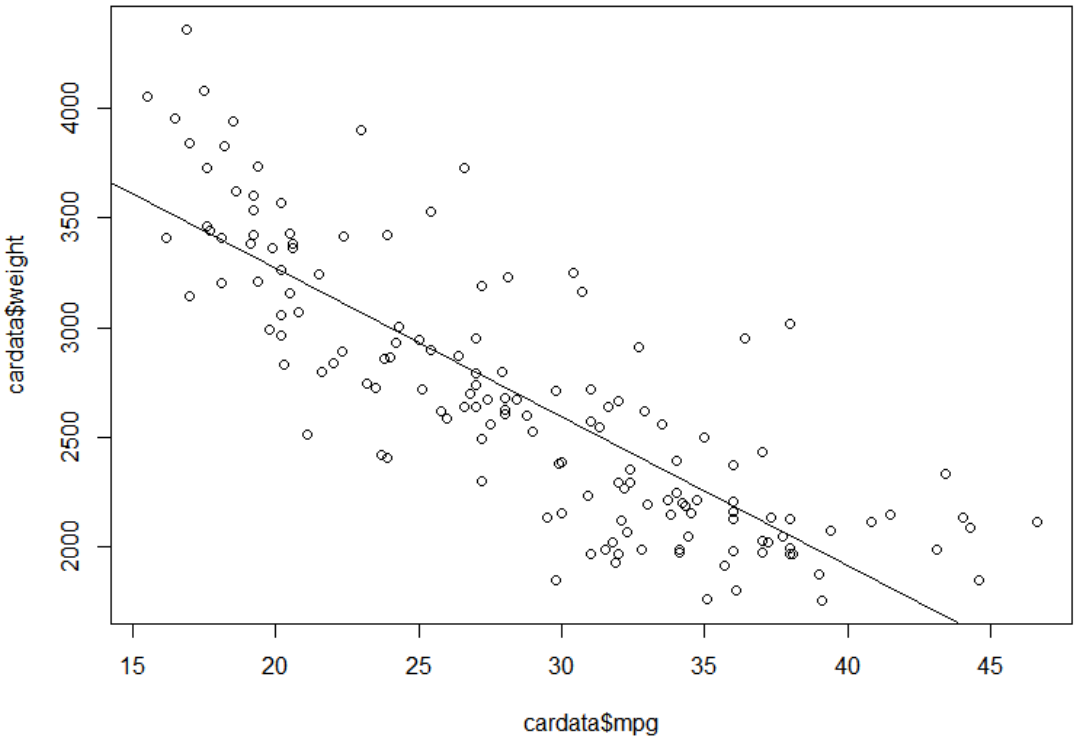


y = -3.380138 + 0.6832987 * x

c. Peso (weight) en función del consumo (mpg)




```
> (b_consumo = cov(cardata$mpg, cardata$weight) / var(cardata$mpg))
[1] -67.866
> (a_consumo = mean(cardata$weight) - b_consumo * mean(cardata$mpg))
[1] 4627.165

y = 4627.165 + -67.866 * x


> (evau = cor(cardata$weight, cardata$mpg))
[1] -0.8257621
```



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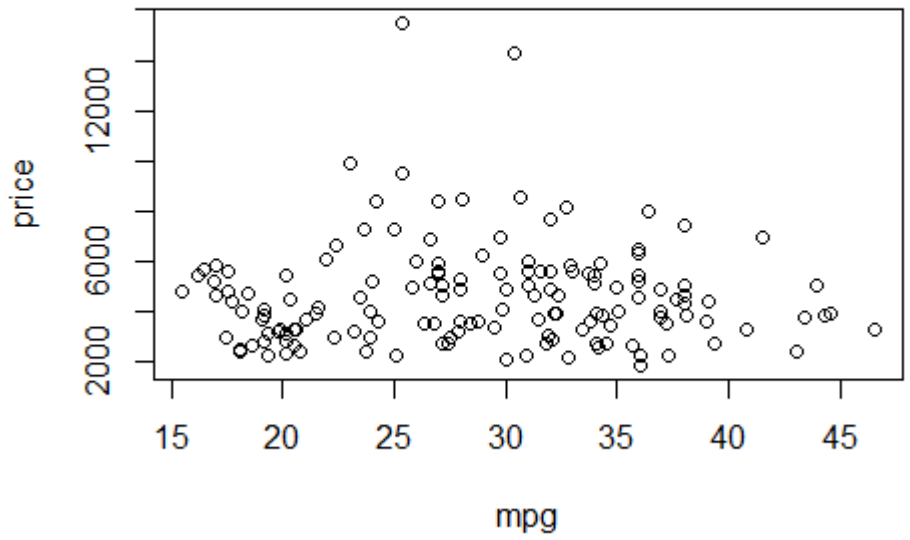
d. Precio(Price) en función del consumo

```
> plot(mpg,price)
```

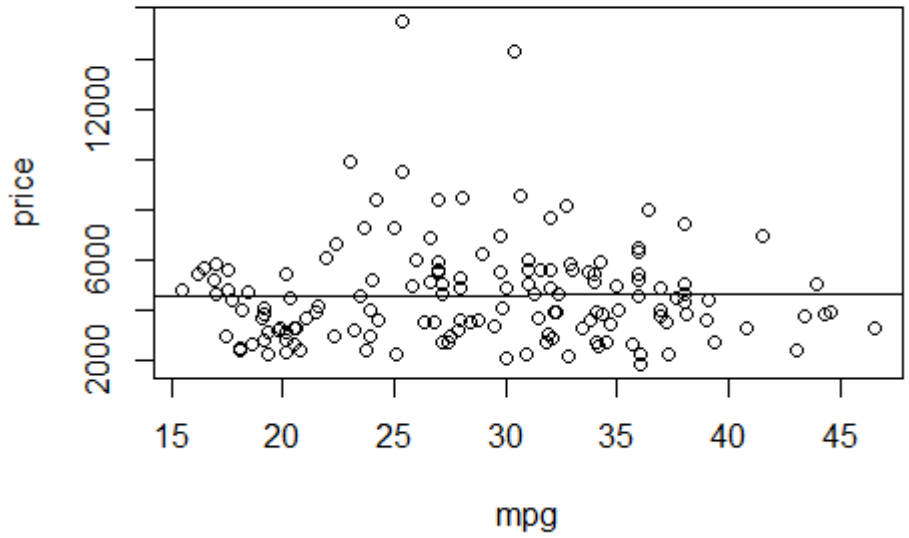



```
> (b_price_mpg = cov(mpg, price)/var(mpg))
[1] 2.953019
> (a_price_mpg = mean(price) - b_price_mpg * mean(mpg))
```

```
[1] 4537.273

> (r_price_mpg = cor(price, mpg))
[1] 0.01070007

> abline(a=a_price_mpg, b=b_price_mpg)
```



y = 4537.273 + 2.953019 * x