

Asignacio_5-2.R

jryma

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```
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```

```
#Ejercicio 1.
```

```
speed <- c(2,3,5,9,14,24,29,34)
```

```
abundance <- c(6,3,5,23,16,12,48,43)
```

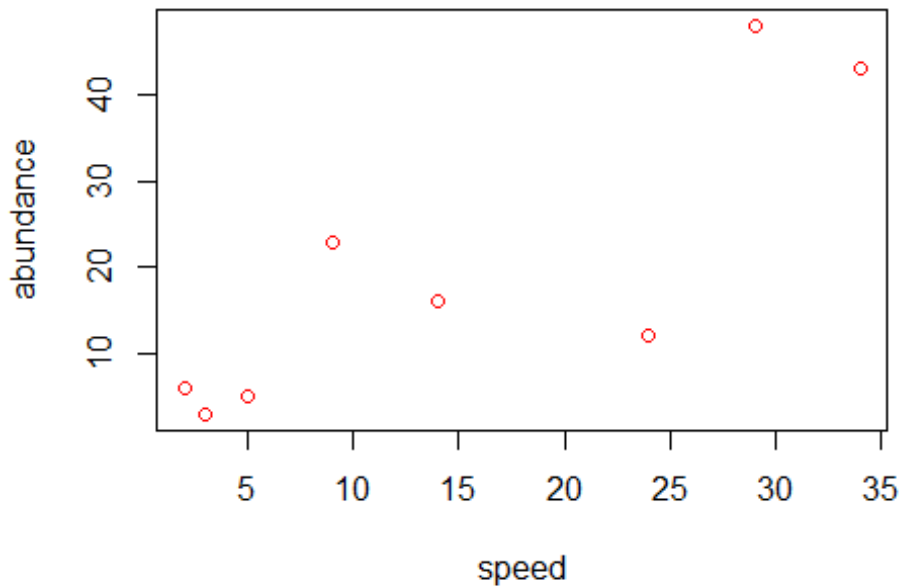
```
efimeras <- data.frame(cbind(speed,abundance))
```

```
efimeras
```

```
##   speed abundance  
## 1     2         6  
## 2     3         3  
## 3     5         5  
## 4     9        23  
## 5    14        16  
## 6    24        12  
## 7    29        48  
## 8    34        43
```

```
plot(efimeras, main= "Efímeras (Ecdyonurus dispar)", col= "red")
```

Efimeras (*Ecdyonurus dispar*)



#H0= No existe correlación significativa entre la velocidad del arroyo y la abundancia de efímeras (Ecdyonurus dispar)
#H1= Si existe una relación significativa entre la velocidad del arroyo y la abundancia de efímeras (Ecdyonurus dispar)

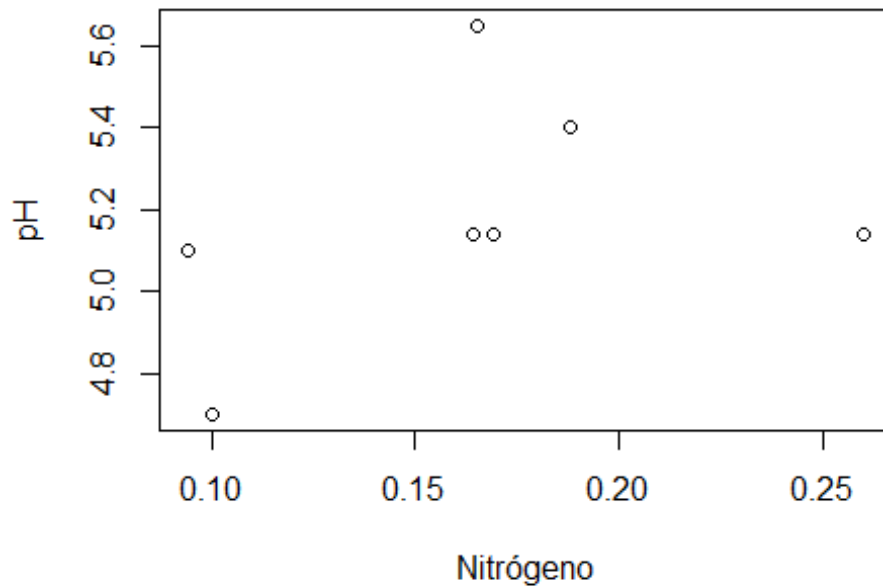
```
cor.test(abundance,speed)
```

```
##  
## Pearson's product-moment correlation  
##  
## data: abundance and speed  
## t = 3.8568, df = 6, p-value = 0.008393  
## alternative hypothesis: true correlation is not equal to 0  
## 95 percent confidence interval:  
## 0.3442317 0.9711386  
## sample estimates:  
## cor  
## 0.8441408
```

#Reporte: df= 6, p- valor= 0.008
#El coeficiente de correlación muestra un valor de 0.84, mientras que el valor de probabilidad resultó en 0.008, aceptándose la hipótesis nula.
#concluyendo que si existe relación Significativa entre la velocidad del arroyo y la abundancia de Ecdyonurus dispar.

Ejercicio 2. -----

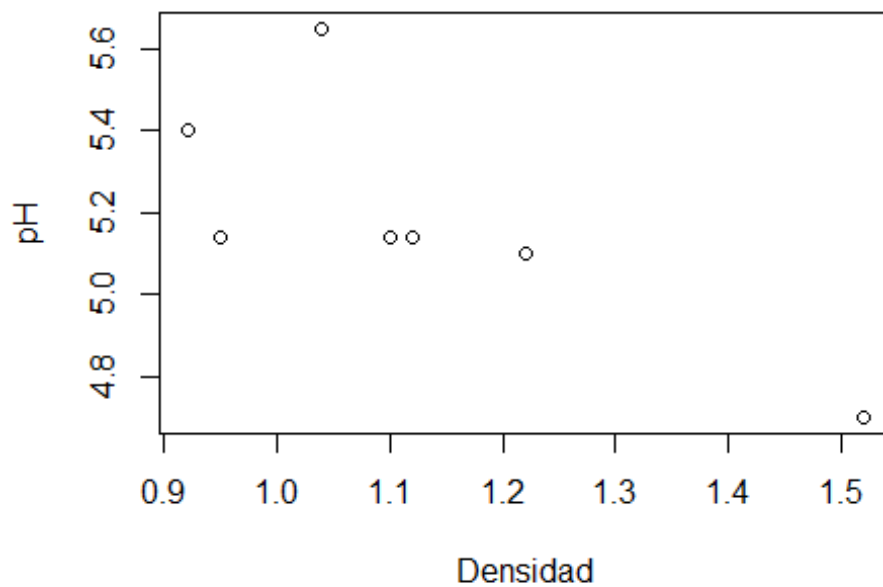
```
--
suelo <- read.csv("est_suelo.csv")
plot(suelo$N, suelo$Ph, xlab = "Nitrógeno", ylab = "pH")
```



```
cor.test(suelo$Ph, suelo$N)

##
## Pearson's product-moment correlation
##
## data: suelo$Ph and suelo$N
## t = 0.94167, df = 5, p-value = 0.3896
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.5156557 0.8830741
## sample estimates:
## cor
## 0.3881145

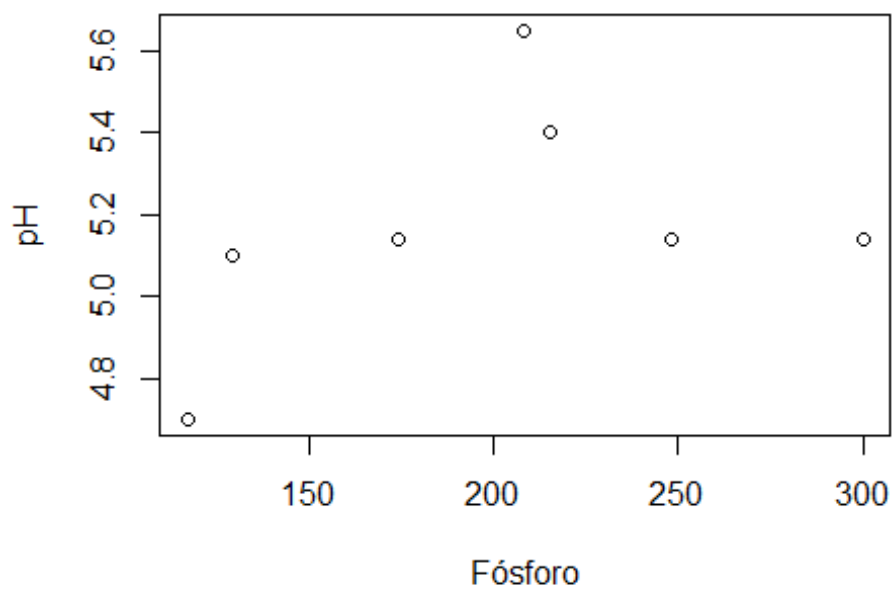
plot(suelo$Dens, suelo$Ph, xlab = "Densidad", ylab = "pH")
```



```
cor.test(suelo$Ph, suelo$Dens)
```

```
##  
## Pearson's product-moment correlation  
##  
## data: suelo$Ph and suelo$Dens  
## t = -2.7306, df = 5, p-value = 0.04125  
## alternative hypothesis: true correlation is not equal to 0  
## 95 percent confidence interval:  
## -0.96468856 -0.04943664  
## sample estimates:  
## cor  
## -0.7736913
```

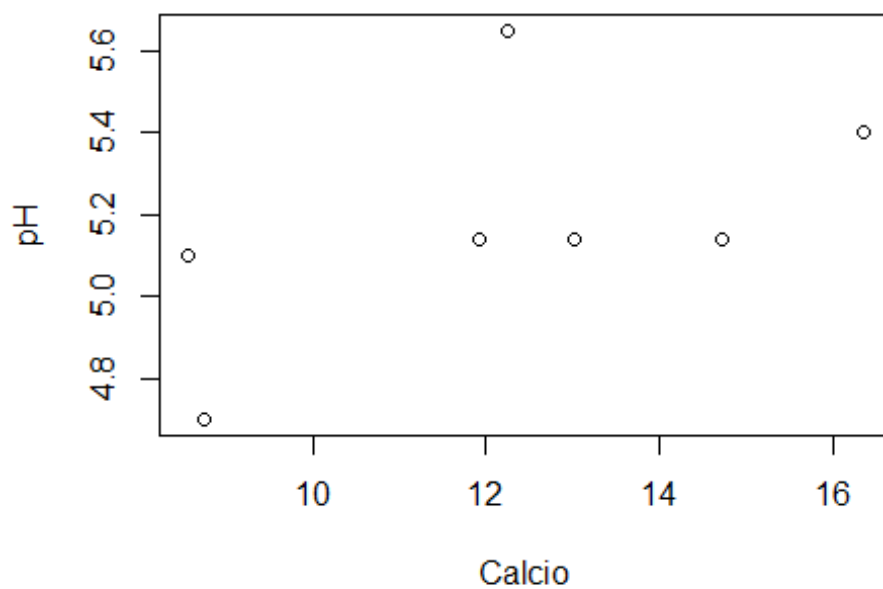
```
plot(suelo$P, suelo$Ph, xlab = "Fósforo", ylab = "pH")
```



```
cor.test(suelo$Ph, suelo$P)
```

```
##  
## Pearson's product-moment correlation  
##  
## data: suelo$Ph and suelo$P  
## t = 1.0367, df = 5, p-value = 0.3474  
## alternative hypothesis: true correlation is not equal to 0  
## 95 percent confidence interval:  
## -0.4865625 0.8913418  
## sample estimates:  
## cor  
## 0.420612
```

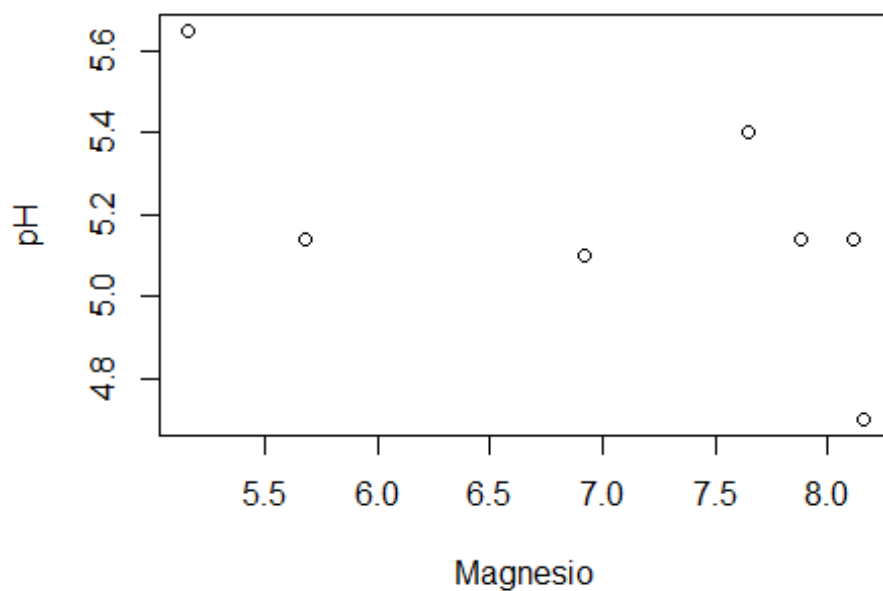
```
plot(suelo$Ca, suelo$Ph, xlab = "Calcio", ylab = "pH")
```



```
cor.test(suelo$Ph, suelo$Ca)

##
## Pearson's product-moment correlation
##
## data: suelo$Ph and suelo$Ca
## t = 1.4707, df = 5, p-value = 0.2013
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.3472302 0.9213176
## sample estimates:
## cor
## 0.5495185

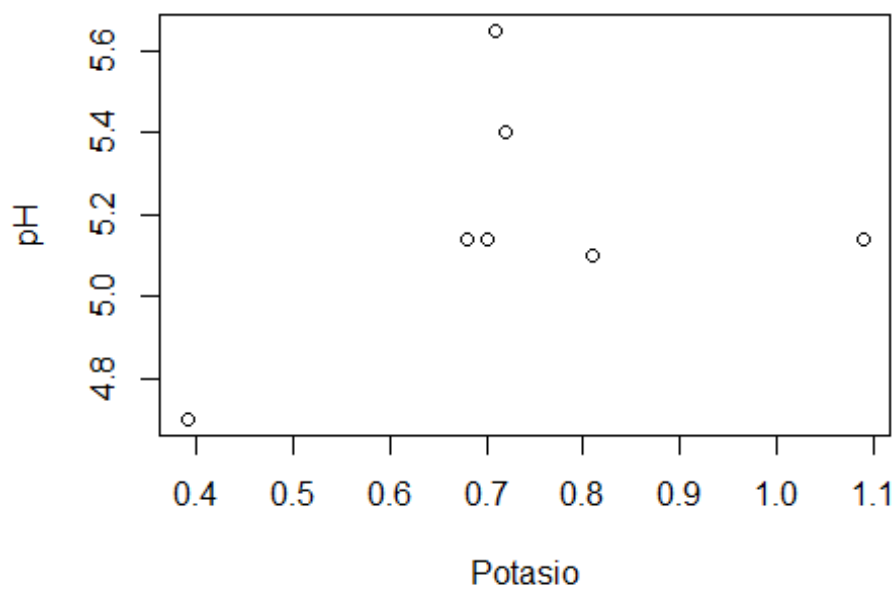
plot(suelo$Mg, suelo$Ph, xlab = "Magnesio", ylab = "pH")
```



```
cor.test(suelo$Ph, suelo$Mg)

##
## Pearson's product-moment correlation
##
## data: suelo$Ph and suelo$Mg
## t = -1.7265, df = 5, p-value = 0.1448
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.9342417 0.2629006
## sample estimates:
## cor
## -0.6111533

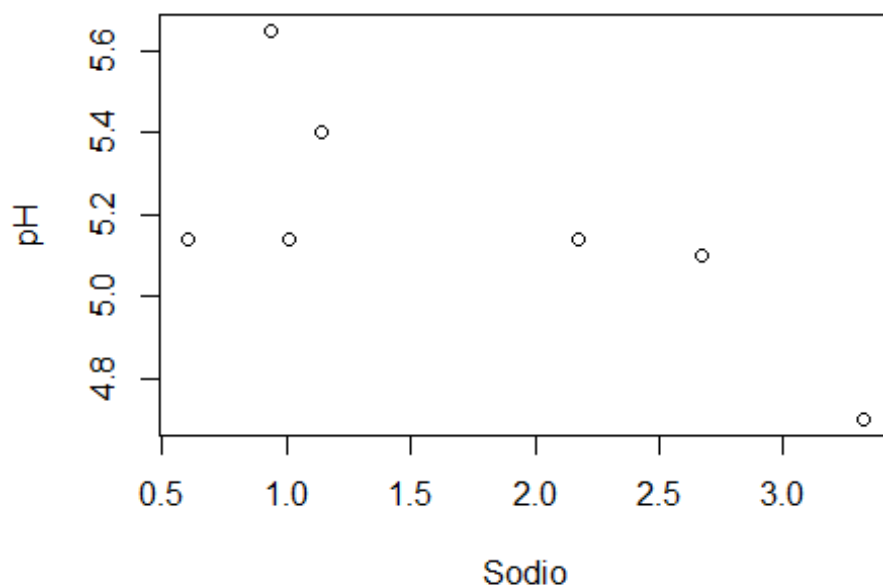
plot(suelo$K, suelo$Ph, xlab = "Potasio", ylab = "pH")
```



```
cor.test(suelo$Ph, suelo$K)

##
## Pearson's product-moment correlation
##
## data: suelo$Ph and suelo$K
## t = 0.89317, df = 5, p-value = 0.4127
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.5302315 0.8785775
## sample estimates:
## cor
## 0.3709419

plot(suelo$Na, suelo$Ph, xlab = "Sodio", ylab = "pH")
```

```
cor.test(suelo$Ph, suelo$Na)

##
## Pearson's product-moment correlation
##
## data: suelo$Ph and suelo$Na
## t = -2.2637, df = 5, p-value = 0.07301
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
## -0.95360061 0.08965103
## sample estimates:
## cor
## -0.711438

#reporte:
conjunto <- c("pH-N", "pH-Dens", "pH-P", "pH-Ca", "pH-Mg", "pH-K", "pH-
Na")
r <- c(0.38, -0.77, 0.42, 0.54, -0.61, 0.37, -0.71)
p_valor <- c(0.38, 0.04, 0.34, 0.20, 0.14, 0.41, 0.07)

data.frame(conjunto, r, p_valor)

## conjunto      r p_valor
## 1    pH-N  0.38    0.38
## 2  pH-Dens -0.77    0.04
## 3    pH-P  0.42    0.34
## 4    pH-Ca  0.54    0.20
```

```
## 5    pH-Mg -0.61    0.14
## 6    pH-K  0.37    0.41
## 7    pH-Na -0.71    0.07
```

#Únicamente el conjunto entre pH-Dens mostró una relación negativa significativa.

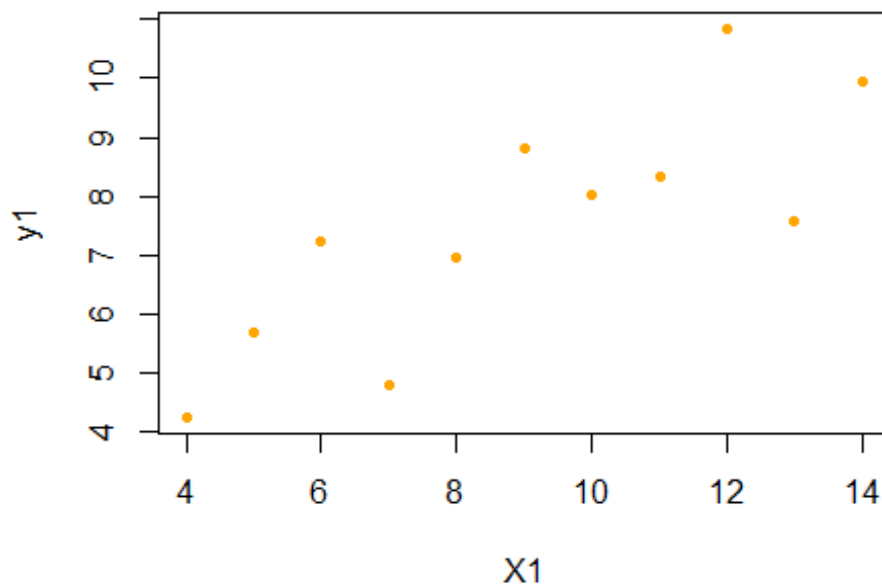
Ejercicio 3. -----

--

```
anscombe <- read.csv("anscombe.csv")
anscombe
```

```
##      x1      y1 x2      y2 x3      y3 x4      y4
## 1  10  8.04 10  9.14 10  7.46  8  6.58
## 2   8  6.95  8  8.14  8  6.77  8  5.76
## 3  13  7.58 13  8.74 13 12.74  8  7.71
## 4   9  8.81  9  8.77  9  7.11  8  8.84
## 5  11  8.33 11  9.26 11  7.81  8  8.47
## 6  14  9.96 14  8.10 14  8.84  8  7.04
## 7   6  7.24  6  6.13  6  6.08  8  5.25
## 8   4  4.26  4  3.10  4  5.39 19 12.50
## 9  12 10.84 12  9.13 12  8.15  8  5.56
## 10  7  4.82  7  7.26  7  6.42  8  7.91
## 11  5  5.68  5  4.74  5  5.73  8  6.80
```

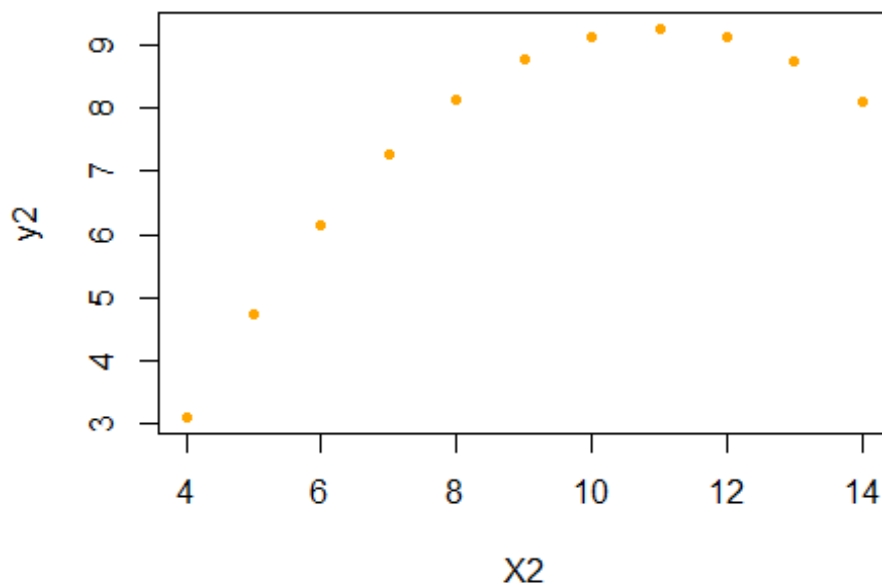
```
plot(anscombe$x1, anscombe$y1, xlab= "X1", ylab= "y1", pch= 20, col=
"orange")
```



```
cor.test(anscombe$x1, anscombe$y1)

##
## Pearson's product-moment correlation
##
## data:  anscombe$x1 and anscombe$y1
## t = 4.2415, df = 9, p-value = 0.00217
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4243912 0.9506933
## sample estimates:
##      cor
## 0.8164205

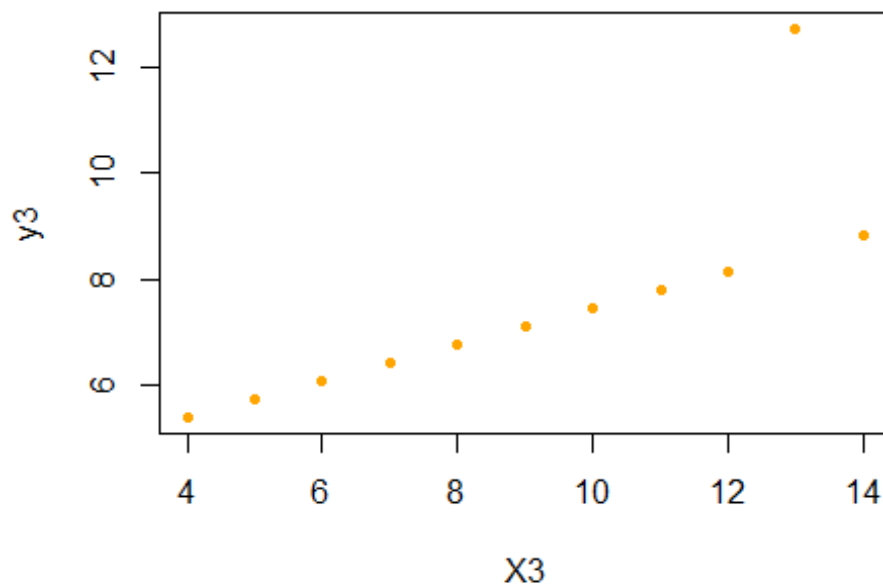
plot(anscombe$x2, anscombe$y2, xlab= "X2", ylab= "y2", pch= 20, col=
"orange")
```



```
cor.test(anscombe$x2, anscombe$y2)

##
## Pearson's product-moment correlation
##
## data:  anscombe$x2 and anscombe$y2
## t = 4.2386, df = 9, p-value = 0.002179
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4239389 0.9506402
## sample estimates:
##      cor
## 0.8162365

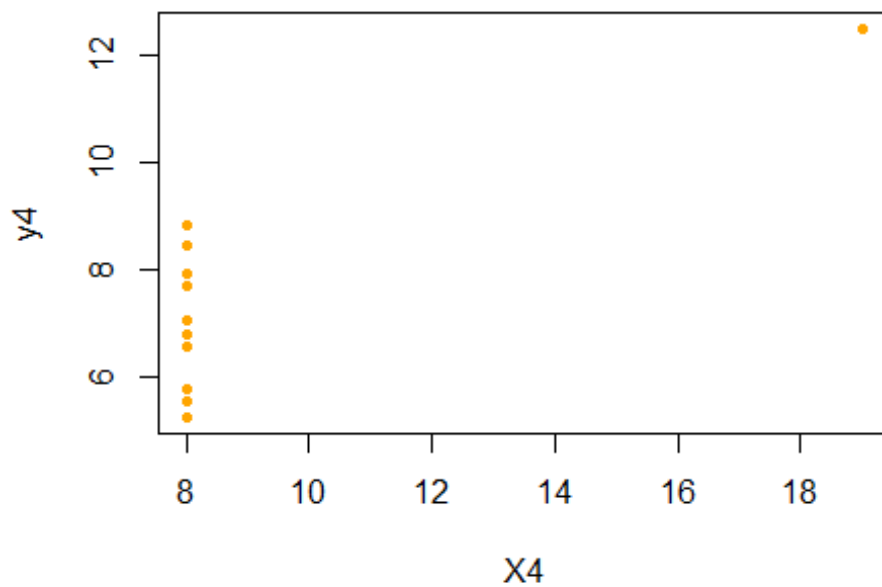
plot(anscombe$x3, anscombe$y3, xlab= "X3", ylab= "y3", pch= 20, col=
"orange")
```



```
cor.test(anscombe$x3, anscombe$y3)

##
##  Pearson's product-moment correlation
##
## data:  anscombe$x3 and anscombe$y3
## t = 4.2394, df = 9, p-value = 0.002176
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4240623 0.9506547
## sample estimates:
##      cor
## 0.8162867

plot(anscombe$x4, anscombe$y4, xlab= "X4", ylab= "y4", pch= 20, col=
"orange")
```



```
cor.test(anscombe$x4, anscombe$y4)
```

```
##
## Pearson's product-moment correlation
##
## data: anscombe$x4 and anscombe$y4
## t = 4.2458, df = 9, p-value = 0.002156
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.4250704 0.9507729
## sample estimates:
##      cor
## 0.8166967
```