# Laboratorio_Sem_5.R

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```
#laboratorio 5 Correlación
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# Generar los gráficos de distribución de puntos ára cada par de datos

#graficar un cuadro de 2x2

op = par(mfrow = c(2, 2), mar = c(4.5, 4, 1, 1))

plot(anscombe$x1, anscombe$y1, pch = 20)

plot(anscombe$x2, anscombe$y2, pch = 20)

plot(anscombe$x3, anscombe$y3, pch = 20)

plot(anscombe$x4, anscombe$y4, pch = 20)
```

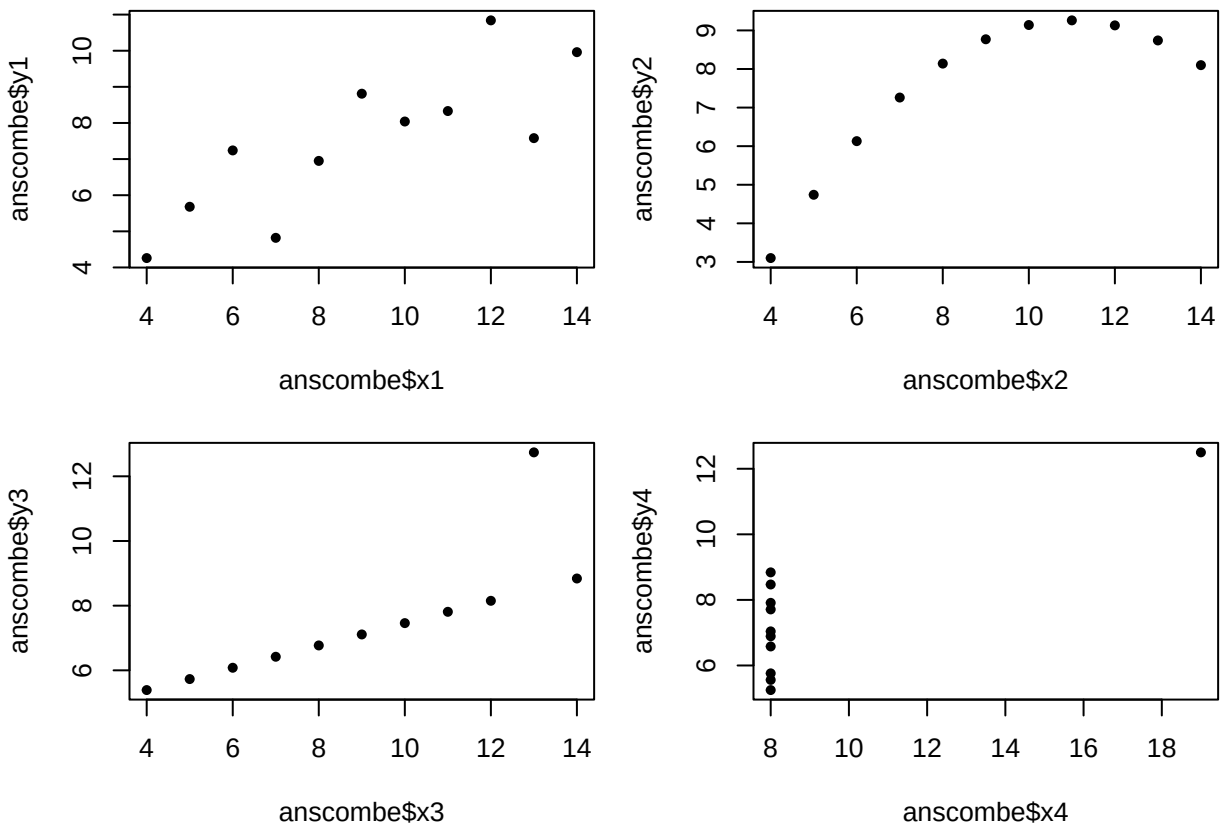


```
par(op)


# 1 ------------------------------------------------------------------------

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
```

```
#alternative hypothesis
#p-value = 0.00217
#cor 0.8164205
#df = 9
ans1.lm <- lm(anscombe$y1 ~ anscombe$x1)
summary(ans1.lm)
```

```
##
```

```
## Call:
## lm(formula = anscombe$y1 ~ anscombe$x1)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.92127 -0.45577 -0.04136  0.70941  1.83882
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   3.0001     1.1247   2.667  0.02573 *
## anscombe$x1   0.5001     0.1179   4.241  0.00217 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.237 on 9 degrees of freedom
## Multiple R-squared:  0.6665, Adjusted R-squared:  0.6295
## F-statistic: 17.99 on 1 and 9 DF,  p-value: 0.00217
```

```
# 2 ------------------------------------------------------------------------

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
```

```
#alternative hypothesis
#p-value = 0.002179
#cor 0.8162365
#df = 9
ans2.lm <- lm(anscombe$y2 ~ anscombe$x2)
summary(ans2.lm)
```

```
##
## Call:
## lm(formula = anscombe$y2 ~ anscombe$x2)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -1.9009 -0.7609  0.1291  0.9491  1.2691
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)    3.001      1.125   2.667  0.02576 *
## anscombe$x2    0.500      0.118   4.239  0.00218 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## Residual standard error: 1.237 on 9 degrees of freedom
## Multiple R-squared:  0.6662, Adjusted R-squared:  0.6292
## F-statistic: 17.97 on 1 and 9 DF,  p-value: 0.002179
```

```
# 3 ------------------------------------------------------------------------

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
```

```
#alternative hypothesis
#p-value = 0.002179
#cor 0.8162365
#df = 9
ans3.lm <- lm(anscombe$y3 ~ anscombe$x3)
summary(ans3.lm)
```

```
##
## Call:
## lm(formula = anscombe$y3 ~ anscombe$x3)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -1.1586 -0.6146 -0.2303  0.1540  3.2411
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   3.0025     1.1245   2.670  0.02562 *
## anscombe$x3   0.4997     0.1179   4.239  0.00218 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.236 on 9 degrees of freedom
## Multiple R-squared:  0.6663, Adjusted R-squared:  0.6292
## F-statistic: 17.97 on 1 and 9 DF,  p-value: 0.002176
```

```
# 4 ------------------------------------------------------------------------

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

```
##
##  Pearson's product-moment correlation
##
## data:  anscombe$x4 and anscombe$y4
## t = 4.243, df = 9, p-value = 0.002165
## alternative hypothesis: true correlation is not equal to 0
```

```
## 95 percent confidence interval:
##  0.4246394 0.9507224
## sample estimates:
##       cor
## 0.8165214
```

```
#alternative hypothesis
#p-value = 0.002179
#cor 0.8162365
#df = 9
ans4.lm <- lm(anscombe$y4 ~ anscombe$x4)
summary(ans3.lm)
```

```
##
## Call:
## lm(formula = anscombe$y3 ~ anscombe$x3)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -1.1586 -0.6146 -0.2303  0.1540  3.2411
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   3.0025     1.1245   2.670  0.02562 *
## anscombe$x3   0.4997     0.1179   4.239  0.00218 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.236 on 9 degrees of freedom
## Multiple R-squared:  0.6663, Adjusted R-squared:  0.6292
## F-statistic: 17.97 on 1 and 9 DF,  p-value: 0.002176
```

```
# resultados ----------------------------------------------------------------


# los cuatro pares de las variablesxytienen
# básicamente la mismacorrelación de 0.816.
# Pero no todos tienen diagramas de dispersión
# en los que los puntos se agrupanalrededor de una línea
```