

```
x=c(4,8,12,16)
#y=c(5,10,15,20)
y=c(20,15,10,5)
```

```
a=cor.test(x,y,method = "pearson")#methods=pearson(default), spearman, kendal
a
```



Pearson's product-moment correlation

```
data: x and y
t = -Inf, df = 2, p-value < 2.2e-16
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
-1 -1
sample estimates:
cor
-1

if(a$estimate==1){
  print("Strong Positive")
}else if(a$estimate==-1){
  print("Strong Negative")
}else{ #dont write else if(a$estimate)==0
  print("No relation")
}

[1] "Strong Negative"
```

```
a=cor.test(x,y,method = "kendal")#methods=pearson(default), spearman, kendal
a
if(a$estimate==1){
  print("Assigned Rank - Positive rln")
}else if(a$estimate==-1){
  print("Assigned Rank - Negative rln")
}else{ #dont write else if(a$estimate)==0
  print("Assigned Rank - No relation")
}

Kendall's rank correlation tau

data: x and y
T = 0, p-value = 0.08333
alternative hypothesis: true tau is not equal to 0
sample estimates:
tau
-1
[1] "Assigned Rank - Negative rln"
```

```
a=cor.test(x,y,method = "spearman")#methods=pearson(default), spearman, kendal
a
```

Spearman's rank correlation rho

```
data: x and y
S = 20, p-value = 0.08333
alternative hypothesis: true rho is not equal to 0
sample estimates:
rho
-1

d1=c(41,52,53,64,65,86,86,92)
d2=c(5,52,53,64,65,86,86,92)

67.375

mean=mean(d1)
median=median(d1)
mode=sort(table(d1),decreasing = TRUE)[1]

86: 2

range=sort(d1,decreasing = TRUE)[1]-sort(d1)[1]
var=var(d1)
sd=sd(d1)
```

```
res<-quantile(d1, probs = c(0.25,0.5,0.75))
q1=res[1]
q2=res[2]
q3=res[3]
dis=mean-sd
dis
```

48.6442956428679

```
data1=data.frame(mean=c(mean),mode=c(86),median=c(median),range=c(range),sd=c(sd),var=c(var),q1=c(q1),q2=c(q2),q3=c(q3),dis=c(dis))
```

```
rownames(data1)=c('dataset1')
```

```
data15
```

A data.frame: 1 × 10

	mean	mode	median	range	sd	var	q1	q2	q3	dis
	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
dataset1	67.375	86	64.5	51	18.7307	350.8393	52.75	64.5	86	48.6443

```
install.packages("e1071")
```

Installing package into ‘/usr/local/lib/R/site-library’
(as ‘lib’ is unspecified)

also installing the dependency ‘proxy’

```
library(e1071)
```

```
d1
skewness(d1)
```

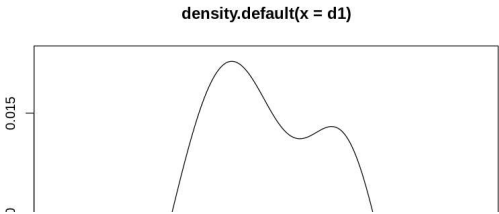
41 · 52 · 53 · 64 · 65 · 86 · 86 · 92
0.0542062901835262

```
density(d1)
plot(density(d1))
plot(d1)
```

```
Call:
  density.default(x = d1)

Data: d1 (8 obs.);    Bandwidth 'bw' = 11.12

      x          y
Min.   : 7.634   Min.   :5.305e-05
1st Qu.: 37.067  1st Qu.:1.561e-03
Median : 66.500  Median :9.191e-03
Mean   : 66.500  Mean    :8.482e-03
3rd Qu.: 95.933  3rd Qu.:1.427e-02
Max.   :125.366  Max.    :1.733e-02
```



```
data(mtcars)
head(mtcars)
```

A data.frame: 6 × 11

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

```
skewness(mtcars$cyl)
-0.174611913930169
```

```
plot(density(mtcars$cyl))
```

