

# Chapter 14 / Example 1

## Spearman's rank correlation coefficient

Find Spearman's rank correlation coefficient for the following sets of data.

**a**

x	23	34	17	23	29	45
y	12	10	14	11	11	8

**b**

x	1	2	3	4	6
y	6	7	8	8	16

Open a new document and add a Lists & Spreadsheet page.

Type 'x' in the first cell.

Type the x-values in the first column.

Press **enter** or **▼** after each number to move to the next cell.

**Note:** 'x' is a label that will be used to calculate the correlation coefficient. You can use any letter or name to label the list.

A	x	B	C	D
1	23			
2	34			
3	17			
4	23			
5	29			

Type 'y' in the cell to the right of 'x'

Enter the y-values in the second column.

Use the **▲▼▶◀** keys on the touchpad to navigate the spreadsheet.

A	x	B	y	C	D
1	23		12		
2	34		10		
3	17		14		
4	23		11		
5	29		11		

To calculate the correlation coefficient

Press **menu** 4:Statistics | 1:Stat Calculations | 3:Linear Regression (mx+b)...

Open the drop down lists with **▶** and select using **▼** and **enter**

Choose 'x' for X List and 'y' for Y List and leave the remaining fields unchanged.

Click the touchpad on OK or press **enter**

Scroll down the calculated values to 'r' using **▼**.

$r = -0.956$

A	x	B	y	C	D
2	34	10	RegEqn	m*x+b	
3	17	14	m	-0.1917...	
4	23	11	b	16.4642	
5	29	11	r <sup>2</sup>	0.910696	
6	45	8	r	-0.9543...	

# Chapter 14 / Example 1

## Spearman's rank correlation coefficient

The ranks are

x	5	4	3	2	1
y	5	4	2.5	2.5	1

Type 'x1' in the first cell of the next available column.

Type the x-values in the column.

	C	D	E x1	F
=			=LinRegV	
1	Title	Linear R...	5	
2	RegEqn	m*x+b	4	
3	m	-0.1917...	3	
4	b	16.4642	2	
5	r <sup>2</sup>	0.910696	1	
z5	1			

Type 'y1' in the cell to the right of 'x1'

Enter the y-values in the column.

	C	D	E x1	F y1
=			=LinRegV	
1	Title	Linear R...	5	5
2	RegEqn	m*x+b	4	4
3	m	-0.1917...	3	2.5
4	b	16.4642	2	2.5
5	r <sup>2</sup>	0.910696	1	1
F5	1			

To calculate the correlation coefficient

Press **menu** 4:Statistics | 1:Stat Calculations | 3:Linear Regression (mx+b)...

Open the drop down lists with **▶** and select using **▼** and **enter**

Choose 'x1' for X List and 'y1' for Y List and leave the remaining fields unchanged.

Click the touchpad on OK or press **enter**

Linear Regression (mx+b)

X List: x1

Y List: y1

Save RegEqn to: f2

Frequency List: 1

Category List:

Include Categories:

OK Cancel

Scroll down the calculated values to 'r' using **▼**.

$r = 0.975$

	E x1	F y1	G	H
=				=LinRegV
2	4	4	RegEqn	m*x+b
3	3	2.5	m	0.95
4	2	2.5	b	0.15
5	1	1	r <sup>2</sup>	0.95
6			r	0.974679
Ff6	=0.9746794344809			