

Chapter 7 / Example 3

Pearson's product-moment correlation coefficient

A school basketball coach kept a record of the number of games played (x) and the number of points scored (y) for seven basketball players.

Player	Games (x)	Points (y)
Ali	3	9
Mateo	4	10
Jerry	4	20
Poom	4	16
Ayo	5	20
Chen	6	29
Jimmy	10	43

Use Pearson's correlation coefficient to determine the strength of the correlation between the number of games played and the number of points scored.

Press **[stat]** 1:Edit and press **[enter]**


Enter the number of games in the first column.

Press or after each number to move to the next cell.

Note: If the list contains other numbers, you can clear it by pressing **[stat]** 4:ClrList and press **[enter]**. The home screen displays ClrList. Press **[2nd]** **[1]** **[L1]** and press **[enter]**. Press **[stat]** 1:Edit and press **[enter]** to return to the table.

L1	L2	L3	L4	L5
3	----	----	----	----
4				
4				
5				
6				
10				

L1(8)=

Press  to move to the next column.




Enter the number of points in the second column.

L1	L2	L3	L4	L5
3	9			
4	10	-----		
4	20			
4	16			
5	20			
6	29			
10	43			
-----	-----			

L2(8)=

Before calculating a correlation coefficient, you must switch this option on.

Press **mode**

Using  and , navigate down to STAT DIAGNOSTICS and select 'ON' by pressing .

```

NORMAL FLOAT AUTO REAL RADIAN MP
DISPLAY CORR COEFF (r,r2,R2)
MAPPRINT CLASSIC
NORMAL SCI ENG
FLOAT 0 123456789
RADIAN DEGREE
FUNCTION PARAMETRIC POLAR SEQ
THICK DOT-THICK THIN DOT-THIN
SEQUENTIAL SIMUL
REAL a+bi re^(ci)
FULL HORIZONTAL GRAPH-TABLE
FRACTIONTYPE: ord Unad
ANSWERS: AUTO DEC FRACT-APPROX
GO TO 2ND FORMAT GRAPH: ON YES
STAT DIAGNOSTICS: OFF ON
STAT WIZARDS: ON OFF
SET CLOCK: 09/23/18 2:11PM

```

Chapter 7 / **Example 3**

Pearson's product-moment correlation coefficient

To calculate the correlation coefficient

Press **[stat]** and **[▶]** to access the CALC menu.

Select 4:LinReg(ax+b) and press **[enter]**.

Leave the X List as L₁ and the Y List as L₂ and navigate down to Calculate.

Press **[enter]**.

```
LinReg(ax+b)
Xlist:L1
Ylist:L2
FreqList:
Store RegEQ:
Calculate
```

Scroll down the calculated values to 'r'.

$r = 0.957$.

Since $0.75 < r \leq 1$, this is a strong correlation.

```
LinReg
y=ax+b
a=4.839130435
b=-3.886956522
r^2=.9159782609
r=.957067532
```