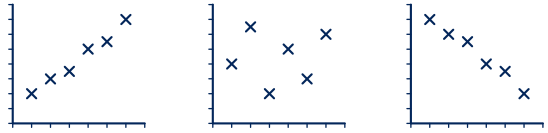
GCSE FOUNDATION · REVISION MAT 4

Correlation and causation

1 Here are three scatter graphs.



Describe the type of correlation shown by each graph.

2 What type of correlation would you expect between

(a) distance and taxi fare
(b) car age and value
(c) birth month and IQ

3 There is positive correlation between umbrella sales and number of car crashes.

Does this mean that umbrella sales cause number of car crashes? Explain.

4 Explain the difference between correlation and causation.

5 The table shows some data.

x	1	2	4	5	7
y	90	82	70	61	50

Describe the correlation between x and y. Explain how you can tell without drawing a graph.

6 A newspaper says "Buying more umbrella sales causes more number of car crashes."

Give a reason why the newspaper could be wrong.

ANSWERS · REVISION MAT 4

Correlation and causation

1 Graph 1: **positive correlation**
Graph 2: **no correlation**
Graph 3: **negative correlation**

2 (a) **positive**
(b) **negative**
(c) **no**

3 **No**. Correlation does not prove causation.

Both are probably linked to a third factor: rainy weather.

4 Correlation means two variables change together.

Causation means a change in one actually causes the change in the other.

5 **Negative** correlation: as x increases, y decreases.

6 A third factor (**rainy weather**) could cause both to rise. The link is correlation, not causation.