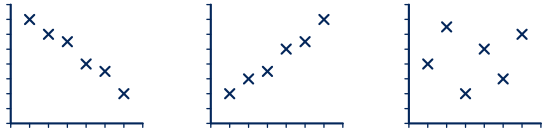
GCSE FOUNDATION · REVISION MAT 5

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) price and number sold
(b) rainfall and umbrellas sold
(c) phone number and height

3 There is positive correlation between hot chocolate sales and heating bills.

Does this mean that hot chocolate sales cause heating bills? Explain.

4 Explain the difference between correlation and causation.

5 The table shows some data.

x	15	20	25	30	35
y	12	16	19	25	27

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

6 A newspaper says "Buying more hot chocolate sales causes more heating bills."

Give a reason why the newspaper could be wrong.

ANSWERS · REVISION MAT 5

Correlation and causation

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

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

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

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

4 Correlation means two variables change together.

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

5 **Positive** correlation: as x increases, y increases.

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