Bivariate data and scatter plots

6 questions | 18 marks

Equivalent correct methods earn the corresponding marks.

1. For the supplied practice-hours table, write all five ordered pairs. [3 marks]

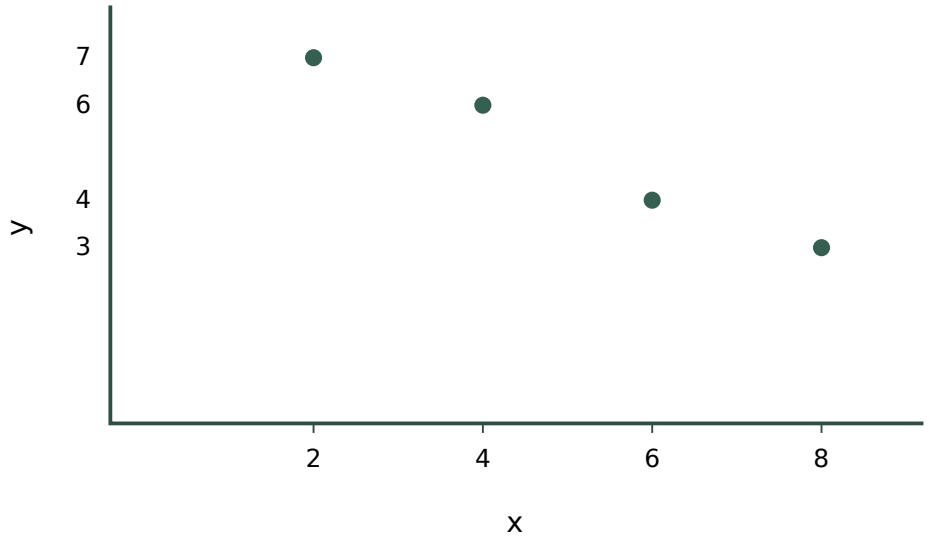
Paired measurements

Practice hours	Quiz score
1	3
2	4
3	4
4	6
5	8

Read each row across without reordering either column.

Answer: (1,3), (2,4), (3,4), (4,6), (5,8).

2. The supplied scatter plot represents (2,7), (4,6), (6,4), (8,3). Check the point for x=6 and state the overall direction. [3 marks]



Read the response at x=6.

The points fall overall as x increases.

Answer: The point is (6,4); negative association.

3. Five measurements are (1,4), (1,4), (2,5), (3,7), (4,8). Why may only four dots be visible? [3 marks]

Count observations separately from distinct locations.

Two individuals have identical coordinates.

Answer: The repeated pair (1,4) overlaps.

4. You want to study whether bicycle mass is related to stopping distance. Name two numerical measurements to collect for each bicycle and state units. [3 marks]

Keep the same bicycle’s two values in the same row.

Use a controlled braking procedure so distances are comparable.

Answer: For each bicycle: mass in kg and stopping distance in m.

5. For a survey of favourite colour and height, is an ordinary numerical scatter plot suitable? Explain. [3 marks]

A scatter plot requires two numerical variables.

Height can instead be compared across colour groups using a suitable grouped display.

Answer: No. Favourite colour is categorical, not a numerical coordinate.

6. A graph has axes called x and y but no units. Give two improvements before presenting it to readers. [3 marks]

Readers must know what each position measures.

Numerical scales must be evenly spaced and cover the observations.

Answer: Use descriptive variable names and units; use clear numerical tick scales.