AP STATISTICS • EXERCISE SHEET

2.4 Representing the Relationship Between Two Quantitative Variables

Name: _____ Class: _____ Date: _____ **Total: 9 marks**

Objective

Build the skills to answer exam questions on **the relationship between two quantitative variables**.

You must be able to:

- display two quantitative variables with a **scatterplot** 散点图
- describe the **direction** 方向, **form** 形态, and **strength** 强度 of the pattern
- identify **outliers** or departures from the pattern

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ Scatterplots

A **scatterplot** plots two quantitative variables, one on each axis.

■ Direction, form, strength

- **Direction** —positive (both rise) or negative (one rises as the other falls).
- **Form** —linear or curved.
- **Strength** —how tightly the points cluster around the pattern.

Note any **outliers** or points that depart from the overall pattern.

2 Practice

2.1 State what a scatterplot displays. [1]

2.2 Name the three things to describe about a scatterplot's pattern. [2]

2.3 State what a ”negative direction” means. [1]

3 Exam-style questions

3.1 A scatterplot displays [1]

- **A** one categorical variable
- **B** two quantitative variables
- **C** a boxplot
- **D** a mean

3.2 As one variable rises and the other falls, the direction is [1]

- **A** positive
- **B** negative
- **C** zero
- **D** curved

3.3 A scatterplot of height versus weight rises to the right in a tight straight-line pattern.

(a) State the direction. [1]

(b) State the form. [1]

(c) State the strength. [1]

4 Go further

- work through the **2.4 Representing the Relationship Between Two Quantitative Variables** lesson on the **Learn** page;
- read the **Exploring Two-Variable Data** section of the AP Statistics handout on the **Know** page.

Solutions

2.1 two quantitative variables, one on each axis.

2.2 direction, form, strength.

2.3 as one variable increases, the other tends to decrease.

3.1 B.

3.2 B.

3.3 (a) positive. (b) linear. (c) strong.