Practice 10.1

Draw a scatter plot for each table of bivariate data.

1 Use 1 centimeter on the horizontal axis to represent 10 units. Use 1 centimeter on the vertical axis to represent 20 units.

x	10	20	30	70	50	40	50
y	36	60	100	212	156	124	144

x	30	20	30	10	60	60	70
y	96	64	92	40	184	180	216

2 Use 1 centimeter on the horizontal axis to represent 5,000 people. Use 2 centimeters on the vertical axis to represent 5,000 cars.

Population (x in 1,000s)	10	20	20	35	30	10	40
Cars (y in 1,000s)	1	2	3	15	9	2	32

Population (x in 1,000s)	25	15	15	25	40	35	20
Cars (y in 1,000s)	4	1	2	5	30	16	5

3 Use 1 centimeter on the horizontal axis to represent 1 hour. Use 1 centimeter on the vertical axis to represent a score of 10.
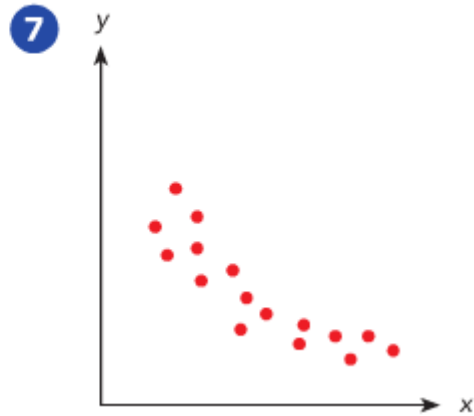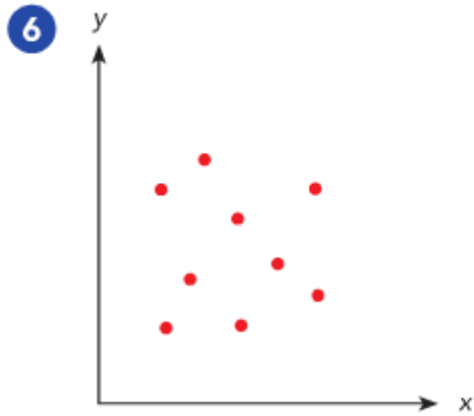
Study Time (x hours)	2	3	5	6	7	4	9
Test Score (y)	22	32	48	62	76	40	90

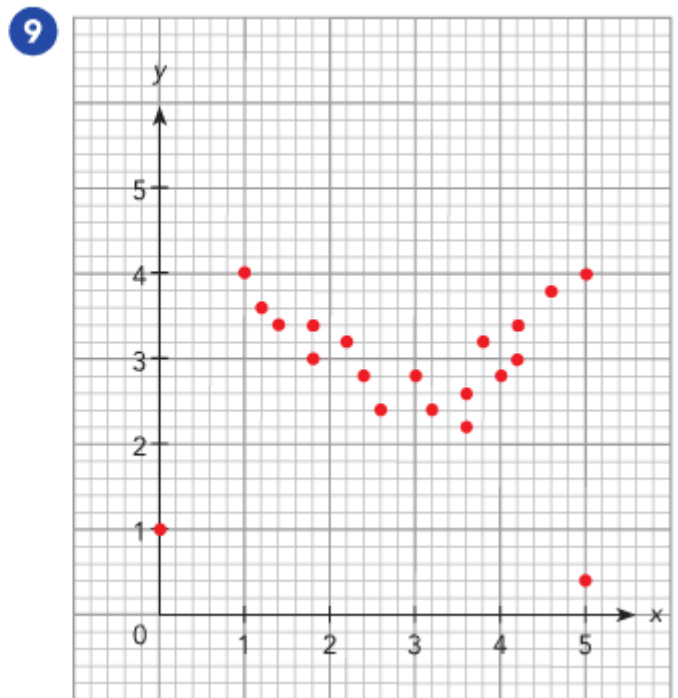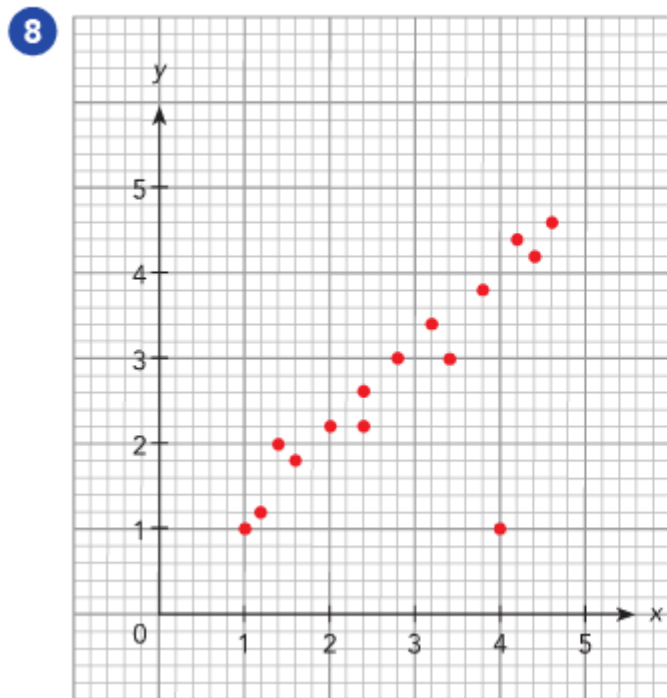| Study Time (x hours)	8	5	6	4	7	9	3
Test Score (y)	84	52	60	42	72	86	36

Describe the association shown in the bivariate data for each scatter plot.
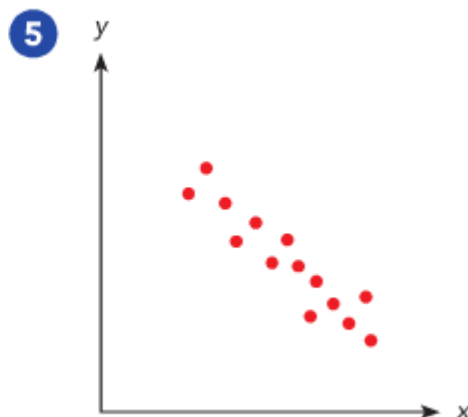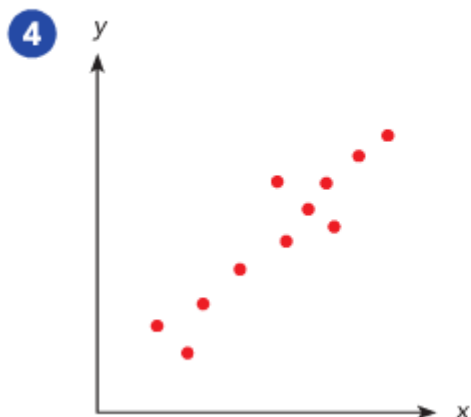
4

5

Describe the association shown in the bivariate data for each scatter plot.

6

7

Identify the outlier(s) in each scatter plot.

8

9

Use the table of bivariate data below to answer questions 10 to 13.

A retailer wanted to know the association between the number of items sold, y, and the number of salespeople, x, in a store. So she recorded the number of salespeople and items sold over 16 days in the table below.

Salespeople	46	48	43	52	52	51	43	47
Items Sold	208	200	192	200	184	212	208	200

Salespeople	48	44	45	51	46	50	49	50
Items Sold	188	200	204	196	192	52	184	200

10 Use graph paper to draw the scatter plot. Use 1 centimeter on the horizontal axis to represent 1 salesperson for the x interval from 43 to 52. Use 1 centimeter on the vertical axis to represent 20 items.

11 Identify the outlier. Give a likely explanation for the occurrence of the outlier.

12 Describe the association between the number of items sold and the number of salespeople in the store. Explain your answer.

13 ✏️ *Math Journal* If the data collected for the number of salespeople ranged from 0 to 100, do you think the answer to **12** would be different? Explain why a wide range of sampling values might be important when investigating the association between bivariate data.

Use the table of data below to answer questions 14 to 17.

To investigate the benefits of warming up before playing a baseball game, 14 amateur baseball players were surveyed. The number of game injuries, y, in a year and the time the player spent warming up for each game, x minutes, are recorded below.

Warm-up Time (min)	4.5	1.5	1	2.5	3	5	0
Game Injuries	11	27	32	23	18	10	39

Warm-up Time (min)	4	2	3.5	0.5	1	2	4.5
Game Injuries	10	24	11	36	30	23	10

14 Use graph paper to draw the scatter plot. Use 2 centimeters on the horizontal axis to represent 1 minute. Use 1 centimeter on the vertical axis to represent 5 game injuries.

15 Identify any outliers.

16 ✏️ *Math Journal* Is there a linear association between the number of game injuries and the time spent warming up before each game? Explain.

17 ✏️ *Math Journal* From the results shown, can you recommend a minimum warm-up time for baseball players before they start a game? How does analyzing association of data sets help to provide useful information?