

Scatter Plots Test REVIEW

For your test, you will need to know:

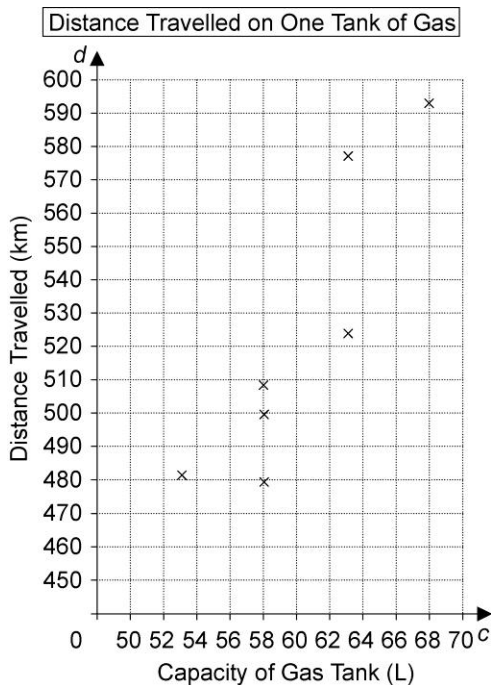
1. How to describe the strength and direction of a correlation
2. How to identify independent and dependent variables
3. What interpolation and extrapolation are
4. What an outlier is, and how to identify one
5. How to create a scatter plot
6. How to draw a line of best fit, and identify the characteristics of a line of best fit.

Practice questions

1. Classify the variables in each pair as independent or dependent.

- a) distance travelled and speed
- b) quality of study and exam mark
- c) time of year and cost of vacation
- d) amount of wool needed and number of sweaters

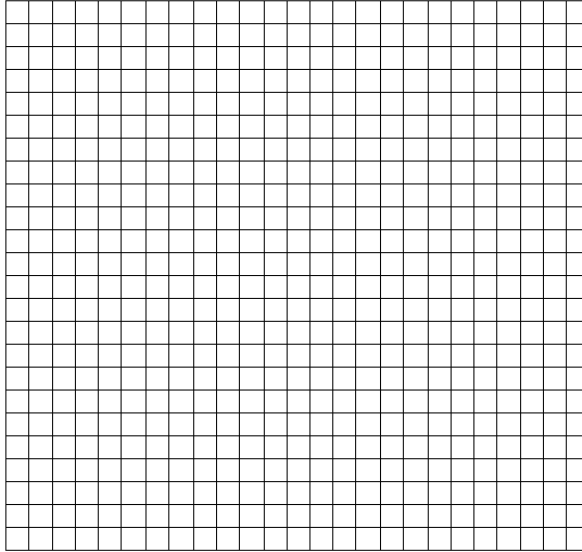
2. This scatter plot shows the capacity of gas tanks and the distance travelled on one tank of gas.



- a) Which is the independent variable?
- b) Which is the dependent variable?
- c) Describe the relationship between the capacity of the gas tank and the distance travelled.

3. The table shows the heights and arm spans for a group of students:

Height (cm)	Arm Span (cm)
162	160
174	175
162	163
171	168
157	171
175	173
154	153
179	177



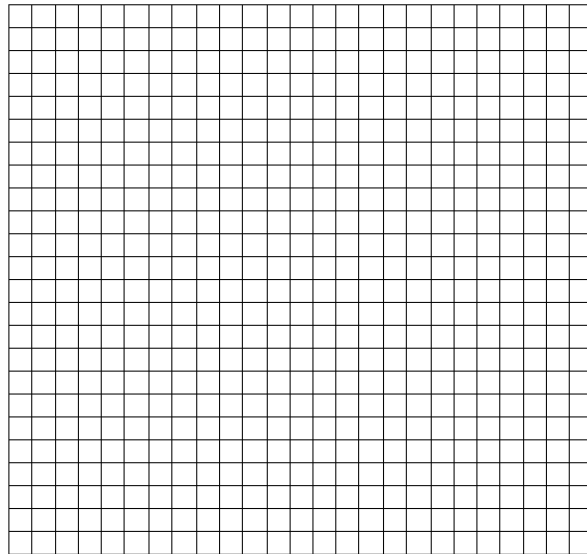
a) Draw a scatter plot of the data.

b) Describe the relationship between a person's height and arm span.

c) Identify any outliers and explain how they are different from the rest of the data.

4. The table shows the values of some used cars.

Value (\$1000s)	Age (years)
36	3
22	6
25	4
29	4
31	3
37	2
21	7



a) Identify the independent variable and the dependent variable.

b) Draw a scatter plot of the data in the table.

c) Describe the relationship between the age of a car and its value.

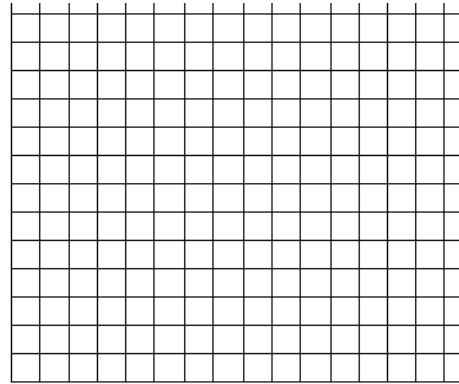
d) Jane bought a 7-year-old car for \$28 000. Did she pay too much? Explain.

5. Interpolation is
- A the process of estimating a value outside the range of the data
 - B the process of estimating a value between two measurements in a set of data
 - C drawing a conclusion based on reasoning and the data
 - D a variable that affects the value of another variable

6. Extrapolation is
- A the process of estimating a value outside the range of the data
 - B the process of estimating a value between two measurements in a set of data
 - C drawing a conclusion based on reasoning and the data
 - D a variable that affects the value of another variable

7. This table compares the age of a tree with the diameter of its trunk.

Age	3	5	6	4	12	8	9	4
Diameter (cm)	9	11	10	9	11	14	13	8

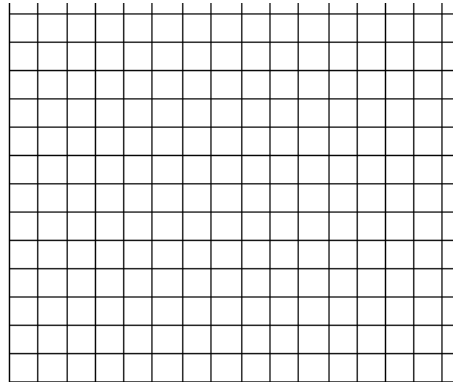


- a) Make a scatter plot of the data.
Draw a line or curve of best fit.

- b) State whether the data show a linear or a non-linear relationship.

8. The table shows the lengths of the tails and the shoulder heights for a group of dogs.

Shoulder Height (cm)	Length of Tail (cm)
66	32
42	15
33	5
30	8
41	14
62	26
65	34
39	12



- a) Draw a scatter plot of the data.

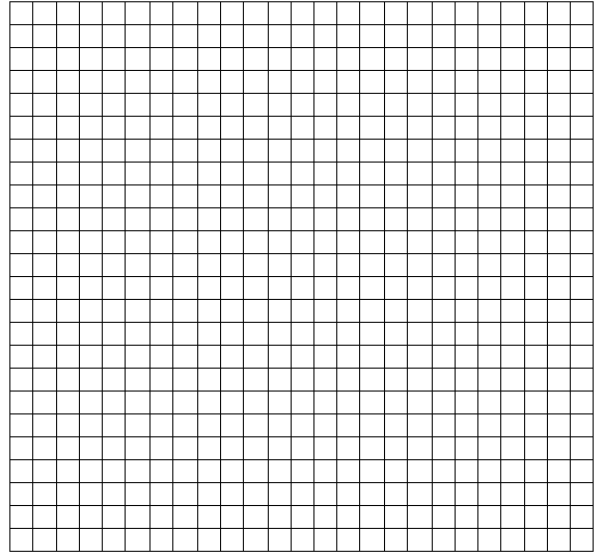
- b) Describe the relationship between the shoulder height of a dog and the length of its tail.

- c) Should any outliers be discarded? Explain.

9. The table shows the profits of a small manufacturing company from 1955 to 2005.

Year	Profits (\$1000s)
1955	48
1965	62
1975	87
1985	110
1995	117
2005	131

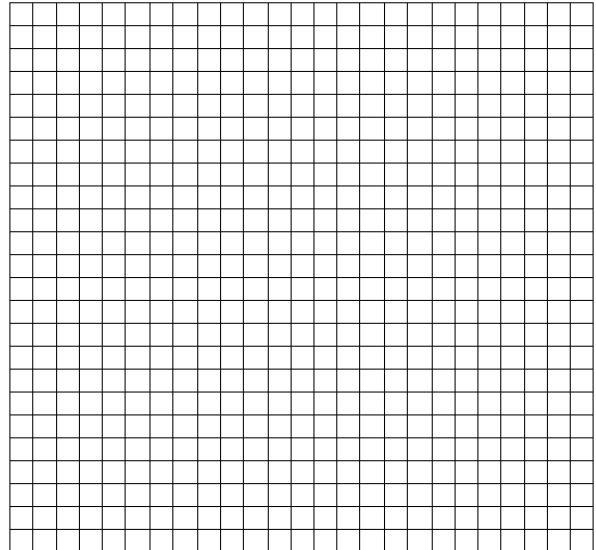
- a) Make a scatter plot of the data.
- b) Describe the trend in the profits.
- c) Estimate the company's profits in 1980.

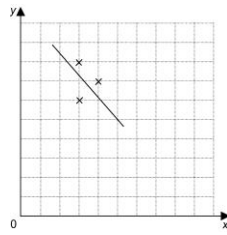


10. The table shows the population of a town.

Year	Population
1941	6800
1951	6690
1961	6505
1971	6003
1981	5899
1991	5542
2001	5307

- a) Make a scatter plot of the data.
- b) Describe the trend in the population.
- c) Estimate the town's population in 2011.





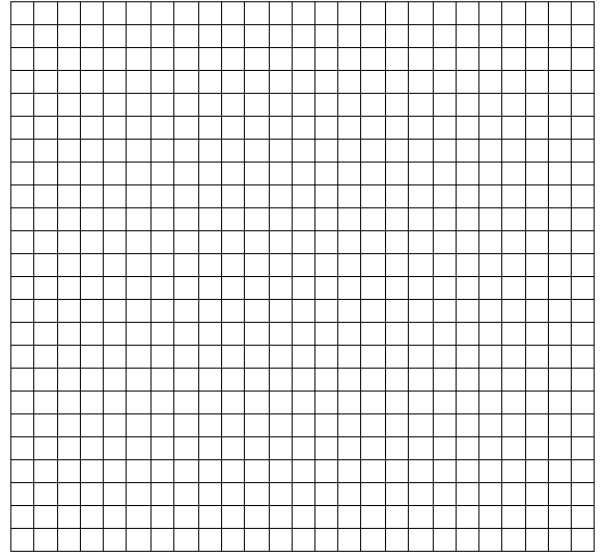
11. Is this line of best fit a good model for the data? Why or why not?

12. The table shows the population of Alberta from 2001 to 2005.

Year	Population (1000s)
2001	3056.7
2002	3116.3
2003	3159.6
2004	3204.8
2005	3256.8

Source: Statistics Canada, CANSIM, table (for fee) 051-0001.

- a) Make a scatter plot of the data.
- b) Describe the trend in the population of Alberta.
- c) Predict the population of Alberta in 2010.



13. This table shows the population of a city from 1935 to 2005.

Year	Population (1000s)
1935	540
1945	610
1955	768
1965	804
1975	819
1985	421
1995	844
2005	856

- a) Make a labelled scatter plot of the data.
- b) Describe the trend in the population.
- c) Identify any outliers. Should any outliers be discarded? Why?
- d) Draw a line or curve of best fit.
- e) Estimate the population in 1950.

