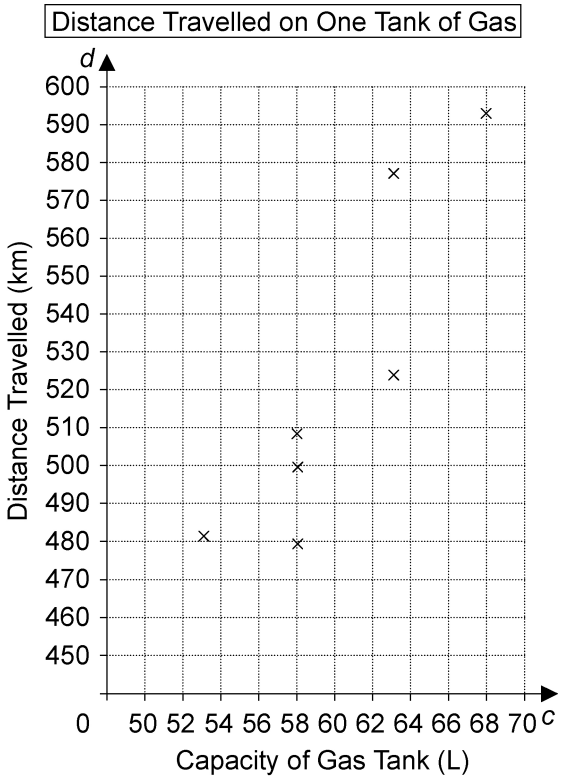
2.3 Scatter Plots Worksheet

MPM1D

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? Which is the dependent variable?
b) 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.

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

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.

ANSWERS

1. **a)** independent: speed; dependent: distance travelled

b) independent: quality of study; dependent: exam mark

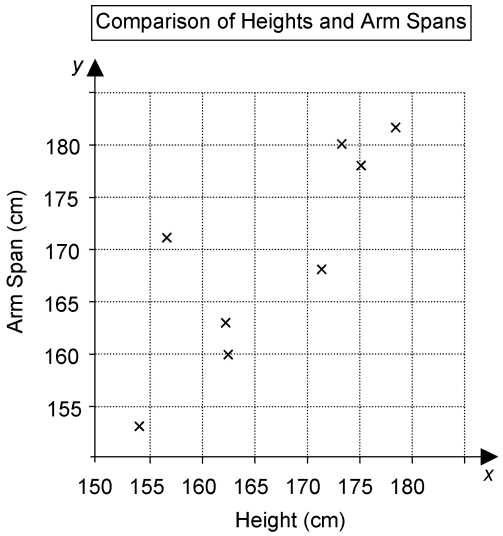
c) independent: time of year; dependent: cost of vacation

d) independent: number of sweaters; dependent: amount of wool needed

2. **a)** independent: capacity of gas tank; dependent: distance travelled

b) as the capacity of the gas tank increases, so does the distance travelled

3. **a)**

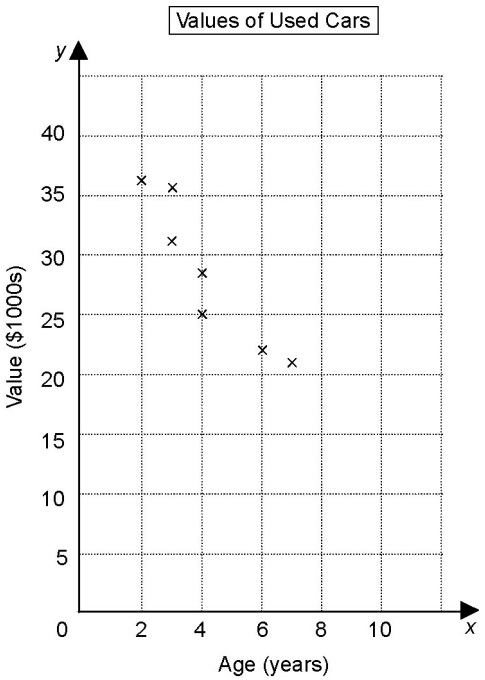


b) A taller person tends to have a longer arm span and a shorter person tends to have a shorter arm span.

c) There is one outlier. The height 157 cm and arm span 171 does not fit the pattern of the other data. In most cases, height and arm span are almost equal.

4. **a)** independent: age; dependent: value

b)



c) As a car gets older, its value tends to decrease.

d) Jane paid too much. When I plot the point (7, 28) on the scatter plot, I can see it is an outlier. The value of another 7-year-old car is only $21 000 and a 4-year-old car has a value of $29 000.