

### Practice test - Bivariate data

In a study of the length of time it takes students to travel to TAFE in a country town, a researcher collected data from 22 students. The data in the table gives the distance that the students travel (in kilometres) and the time it takes (in minutes).

<i>Distance travelled (km)</i>	<i>Time taken (mins)</i>
8	18
8	30
12	15
15	75
20	45
23	60
25	47
40	50
45	80
50	75
50	90
3	5
7	10
8	10
10	10
10	18
15	10
20	30
25	25
30	30
40	42
50	50

- a** Use your calculator to construct a scatterplot of the *time taken* against the *distance travelled*. In this investigation, *distance travelled* is the explanatory variable.

Copy it into the space below.

- b** Use the scatterplot to describe the association between the variables in terms of strength, direction and form.

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- c** Determine the correlation coefficient  $r$  for this set of data. Write your answer correct to 3 significant figures.

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- d** Use the least squares method to find the equation for the line which will enable *time taken* to be predicted from *distance travelled*. Write the equation in terms of the variables involved and coefficients in the equation correct to 3 significant figures.

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- e Use the equation of this line to predict the time taken (to the nearest minute) for a student who lives 30 km from the TAFE. In making this prediction, are you interpolating or extrapolating?

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