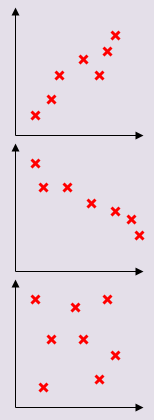
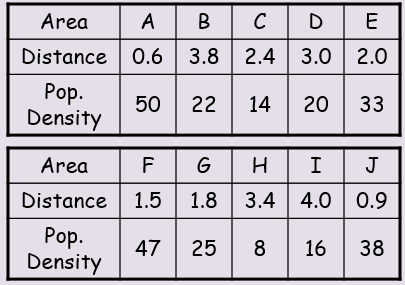
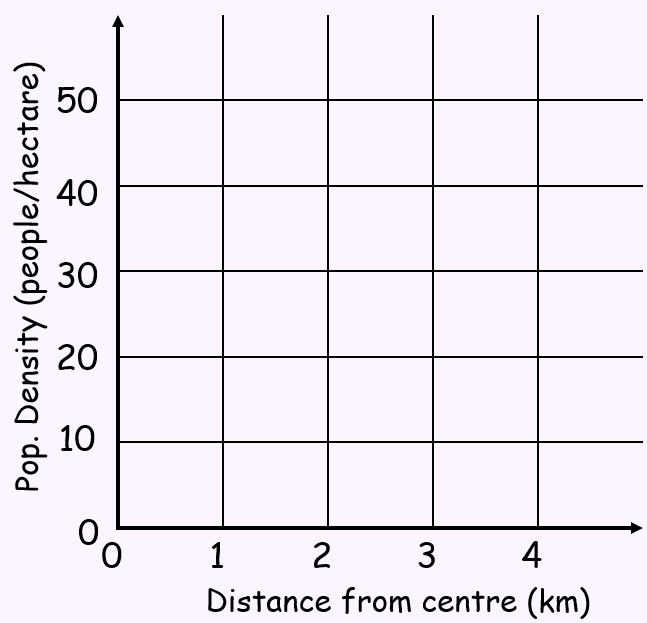
**4A Correlation & Drawing Scatter Diagrams**



1. In the study of a city, the population density, in people/hectare, and the distance from the city centre, in km, was investigated by choosing sample areas. The results are as follows:



Plot a scatter graph and describe the correlation. Interpret what the correlation means.



1. Hideko was interested to see if there was a relationship between what people earn and the age at which they left education or training. She asked 14 friends to fill in an anonymous questionnaire and recorded her results in a scatter diagram.
2. Describe the type of correlation shown



Hideko says that her data supports the conclusion that more education causes people to earn a lower hourly rate of pay

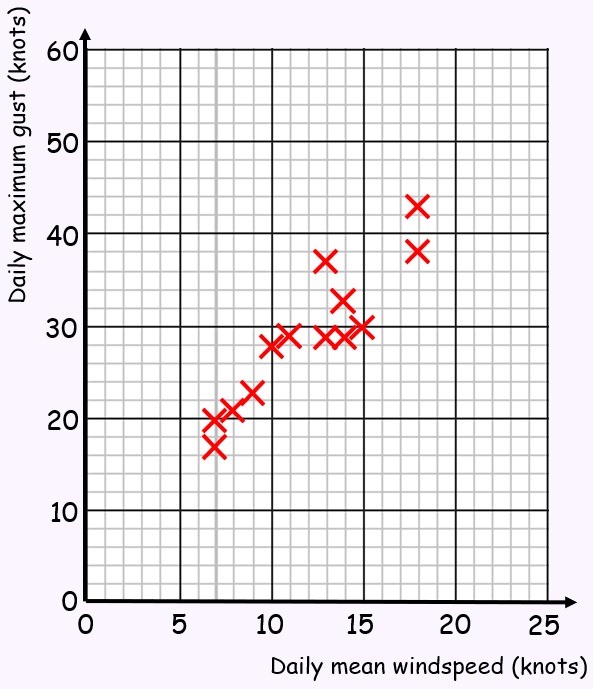
1. Give one reason why Hideko’s conclusion might not be valid

**4B Linear Regression - Lines of Best Fit**

1. From the large data set, the daily mean windspeed, knots, and the daily maximum gust, knots, were recorded for the first 15 days in May in Camborne in 2015.

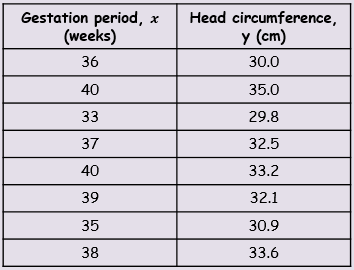
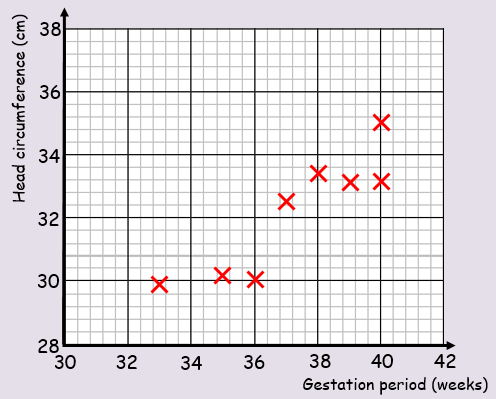
The data was plotted on a scatter diagram:

1. Describe the correlation between daily mean windspeed and daily maximum gust



The equation of the regression line of on for this data is:

1. Give an interpretation of the value of the gradient of this regression line
2. Justify the use of a linear regression line in this case.
3. The head circumference, cm, and gestation period, weeks, for a random sample of newborn babies were recorded, and the scatter graph shows the results.

The equation of the regression line of on is:

1. This equation is used to estimate the head circumference of a baby born after 39 weeks and a baby born after 30 weeks. Comment on the reliability of these estimates.

A nurse wants to estimate the gestation period for a baby born with a head circumference of 31.6cm.

1. Explain why the regression equation above is not suitable for this estimate