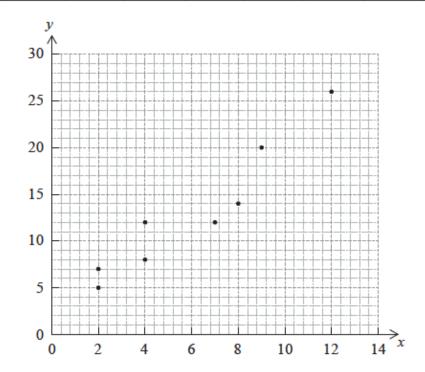**ASSIGNMENT:** Scatter Plots, Correlation, and Z-scores

z = x − μ
     σ   where μ = mean and σ = standard deviation

4. Consider the following set of data which is plotted on the scatter diagram below.

x	2	4	7	12	4	8	9	2
y	5	8	12	26	12	14	20	7

(a) Write down the coordinates of the mean point $(\bar{x}, \bar{y})$.   *[2 marks]*

(b) Write down the value of r, the Pearson's product-moment correlation coefficient for this set of data.   *[2 marks]*

(c) Draw the regression line for y on x on the set of axes above.   *[2 marks]*

21.)   A van can take either Route A or Route B for a particular journey.

If Route A is taken, the journey time may be assumed to be normally distributed with mean 46 minutes and a standard deviation 10 minutes.

If Route B is taken, the journey time may be assumed to be normally distributed with mean μ minutes and standard deviation 12 minutes.

(a)   For Route A, find the probability that the journey takes **more** than 60 minutes.

(2)

(b)   For Route B, the probability that the journey takes **less** than 60 minutes is 0.85. Find the value of μ.

(3)

(c)   The van sets out at 06:00 and needs to arrive before 07:00.

(i)   Which route should it take?

(ii)   Justify your answer.

(3)