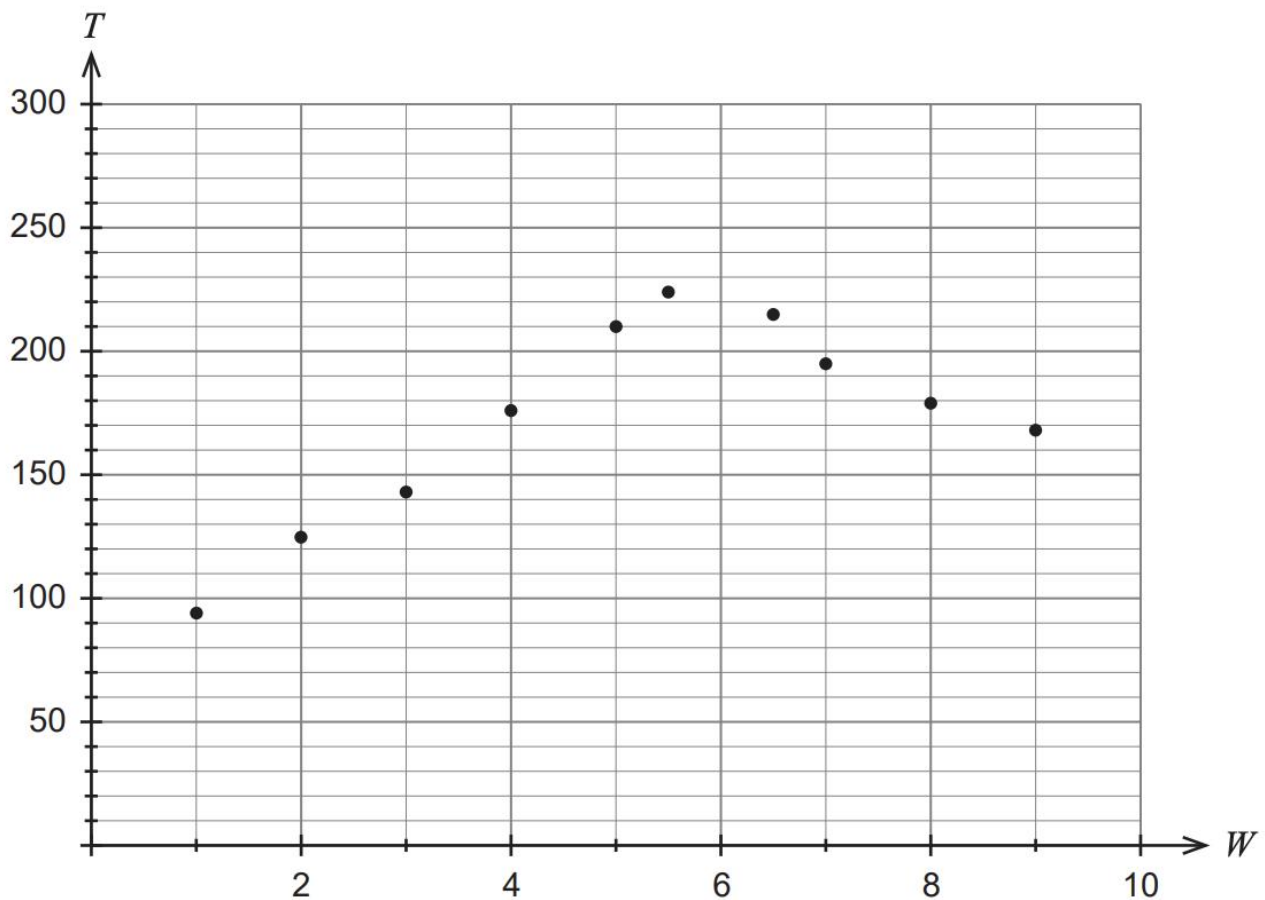


Question 2**(9 marks)**

Katie is a hobby farmer who has been experimenting with a species of tomato plant growing under the same soil and climatic conditions. She varied the amount of water (W), in millimetres, used during each week and recorded the total number of tomatoes (T) produced by each plant. The scatterplot showing her results is drawn below.



Katie determined the following summary information:

- $r_{WT} = 0.66$
- the equation of the least-squares line is $T = 10.55W + 119.11$

(a) Identify the response variable.

(1 mark)

- (b) Use the equation of the least-squares line to predict the total number of tomatoes produced when 10 millimetres of water are given to a plant during each week. (2 marks)

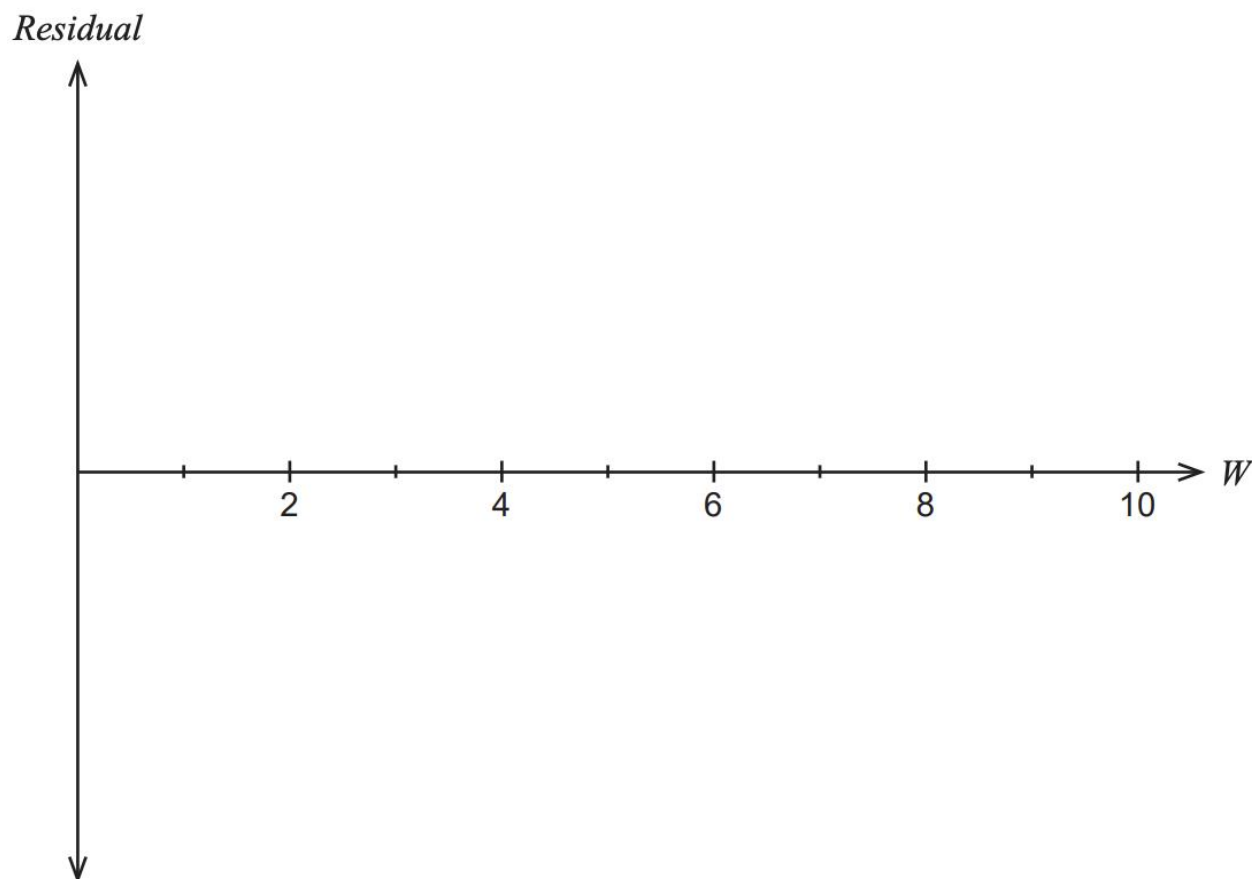
(c) Fit the least-squares line to the scatterplot.

(2 marks)

Katie decided to draw a residual plot to gather more information about her results.

- (d) (i) Sketch a residual plot she would have likely drawn for the given data.
Note: you do not have to calculate actual values.

(2 marks)



- (ii) Use your residual plot to discuss the appropriateness of fitting a linear model to the data.

(2 marks)