

Example 1: The following table shows the relationship between a student's mark and the number of hours he/she spent watching tv.

Independent X Dependent Y

Hours of TV <i>X</i>	Mark (%) <i>Y</i>
2	82
4	64
0	84
3	70
2	74
2	76
1	85
3	73
1	94
2	90

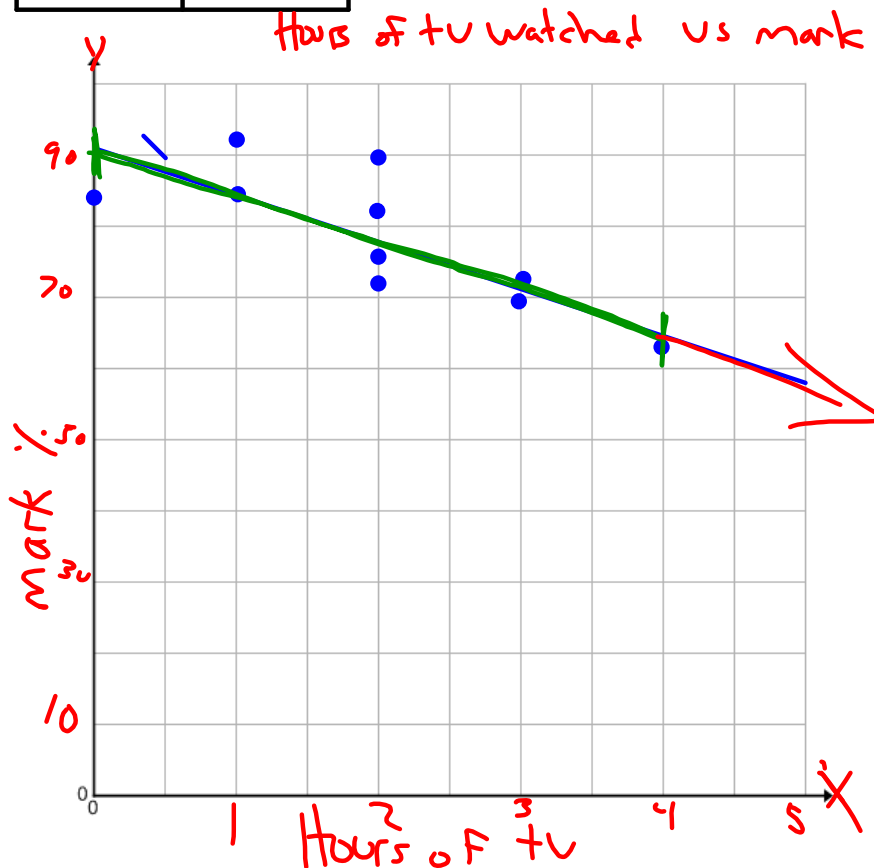
a) Identify the dependent and independent variables.

b) Make a scatter plot of the data.

c) Describe the general trend of the data.

The more tv you watch the lower your mark will be

d) Draw a line of best fit to model the data



Line of Best Fit needs to fit the following criteria:

1. Needs to follow the trend of the data
2. Pass through as many points as possible with the remainder of the points spaced equally above and below the line

The **LINE OF BEST FIT**: allows us to make predictions for values not actually recorded and plotted.

INTERPOLATION: involves making a prediction of a value **WITHIN** the recorded data.

Example: Predict a student's score if he/she spends 2.5 hours watching tv.

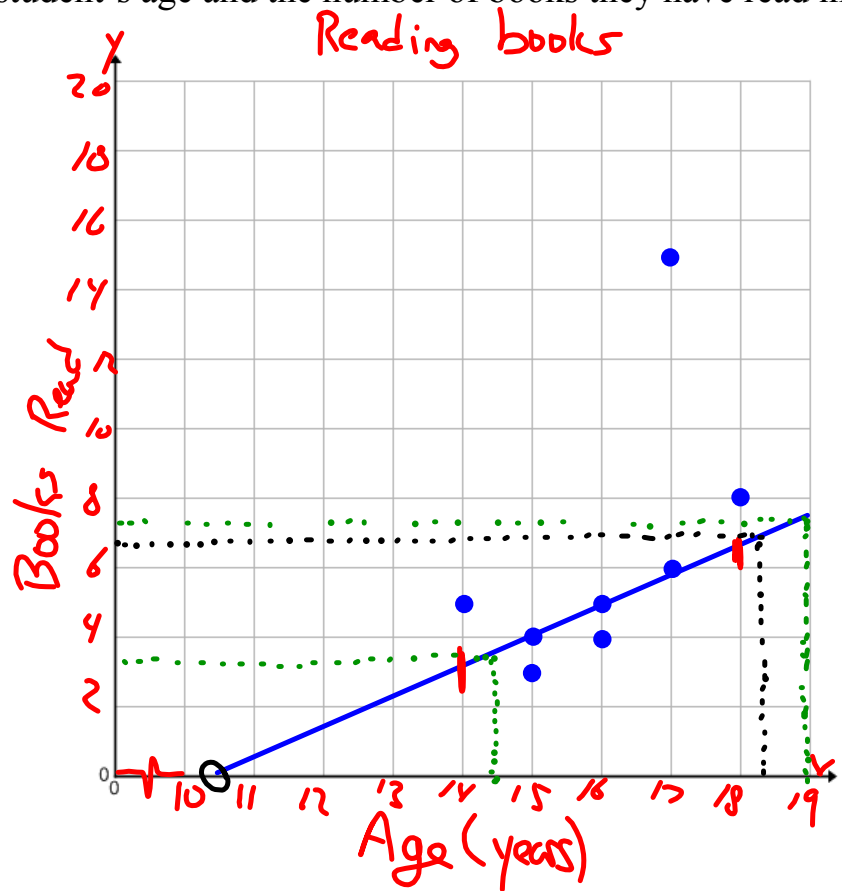
EXTRAPOLATION: involves making a prediction of a value **OUTSIDE** the recorded data.

Example: Predict the score of a student who watches 4.5 hours of tv.

Example 2: The following table represents data from a survey to determine the relationship between a student's age and the number of books they have read in the past year.

x y
Independent Dependent

Age(years)	Books Read
16	5
15	3
18	8
17	6
16	4
15	4
14	5
17	15



- a) Make a scatter plot of the data.
- b) Describe the relationship between the variables.
AS you age the # of books you read increases
- c) Draw a line of best fit.
- d) Predict how many books a 19 year old would have read. (Is this Interpolation or Extrapolation?)
about 7.5 books
- e) Predict how many books a 14.5 year old would have read. (Is this Interpolation or Extrapolation?)
Just over 3 books
- f) If a student read 7 books approximately how old would he/she be? Just over 18 years old
- g) Are there any limitations to this data?