U4D3_T Line of Best Fit

Thursday, March 22, 2018 10:30 AM

U9D3_T
Line of Be...

Line of Best Fit

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

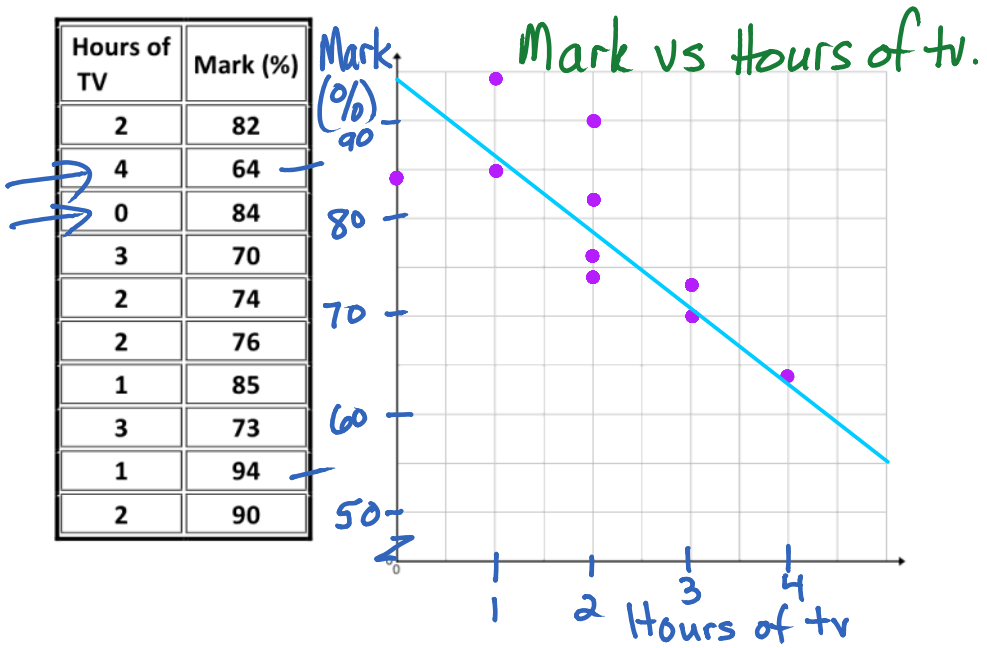
a) Identify the dependent and independent variables.

Dependent Variable is number of hours of tv.

Independent Variable is mark (%).

b) Make a scatter plot of the data.

Hours of TV	Mark (%)
2	82
4	64
0	84
3	70
2	74
2	76
1	85
3	73
1	94
2	90



c) Describe the general trend of the data.

There is a slight negative correlation.

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

1. **It needs to follow the trend of the data.**
2. **Ideally passes through as many points as possible keeping roughly the same number of points above and below the line as the graph goes from left to right.**

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

INTERPOLATION: **using line of best fit to make a prediction WITHIN the set of plotted data points.**

EXTRAPOLATION: **using line of best fit to make a prediction OUTSIDE the set of plotted data points.**

U4D3 HW: Pages 73-76 # 2 - 4, 7

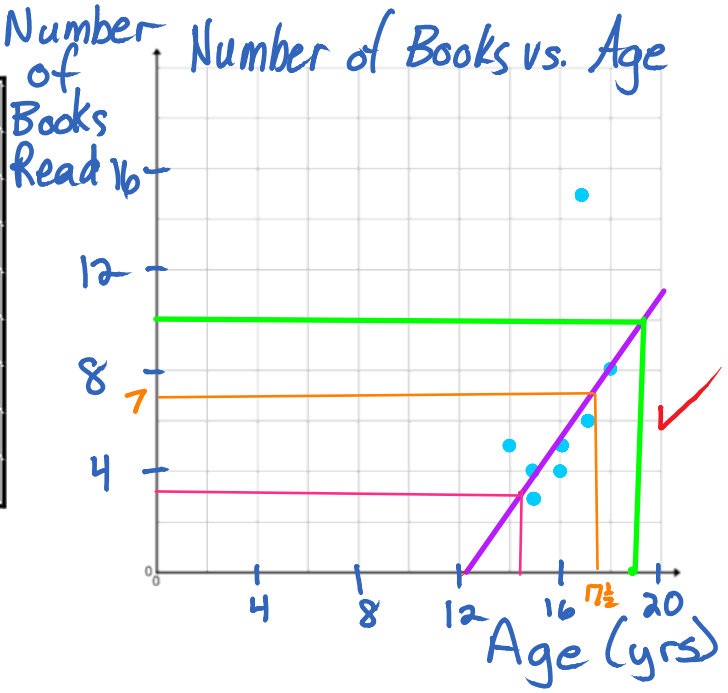
Example 2: The following table represents data from a survey to determine the relationship between a student's age and the number of books they have read in the past year.

a) Make a scatter plot of the data.

U4D3 HW: Pages 73-76 # 2 - 4, 7

U10D3 (2.4)

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



b) Describe the relationship between the variables.

As the age increase the number of books 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?)

10 books

e) Predict how many books a 14.5 year old would have read. (Is this Interpolation or Extrapolation?)

3 books

U4D3 HW: Pages 73-76 # 2 - 4, 7

f) If a student read 7 books approximately how old would he/she be?

17 ± 2 years.

g) Are there any limitations to this data?

Cannot extrapolate very far. (an 11-year old does not read a negative number of books) A 6-yr old reads over 100 books in real life. Length of books very greatly.

U4D3 HW: Pages 73-76 # 2 - 4, 7