

Unit 3 Part 1 - Relations

2.5 - Linear and nonlinear graphs, and lines of best fit

Learning Goal:

You will identify whether data is linear or nonlinear, draw lines or curves of best fit and make predictions



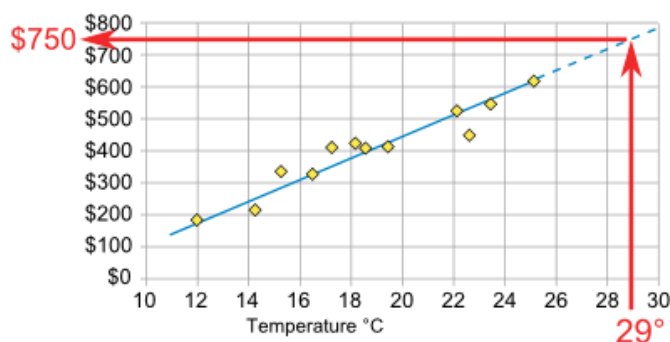
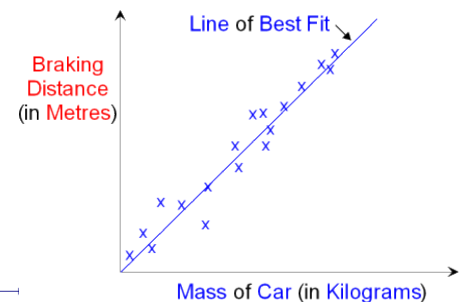
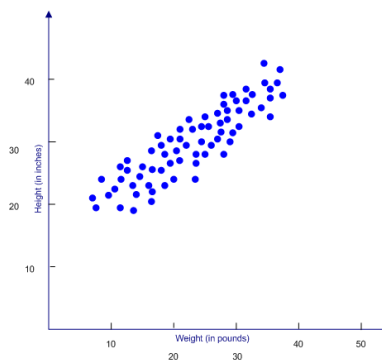
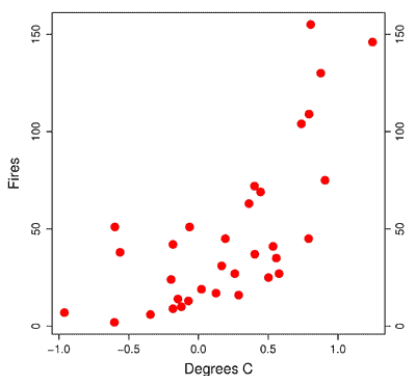
Linear and Non-Linear Relations

Data that form a relatively straight line on a scatter plot indicate a **linear relationship** between the variables.

A **line of best fit** can model a linear relationship. The line of best fit is a straight line that comes closest to the points on the scatter plot.

A **curve of best fit** can model a nonlinear relationship.

You can use a line or curve of best fit to interpolate values within a data set or extrapolate values beyond the range of a set of data by extending the line (or curve of best fit).

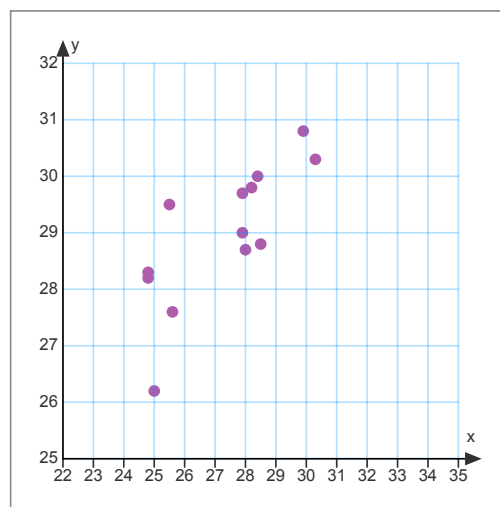


an example of extending a line of best fit in order to extrapolate

Example: drawing a line of best fit by hand, and using DESMOS

The body temperature of a lizard is related to the surrounding temperature. Researchers have collected the following data:

Surrounding Temp	Body Temp
25	26.2
24.8	28.2
27.9	29.7
30.3	30.3
28.2	29.8
24.8	28.3
25.6	27.6
29.9	30.8
25.5	29.5
28.4	30
28.5	28.8
28	28.7
27.9	29



- 1) Is the relationship linear or nonlinear?
- 2) Draw a line of best fit
- 3) Estimate the lizard's body temp when surrounding temp is 26°
- 4) Estimate the lizard's body temp when the surrounding temp is 35°

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