

Modelling with Linear Graphs

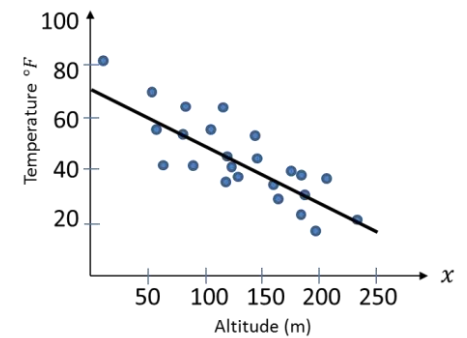
Many real life variables have a 'linear' relationship, i.e. there is a fixed increase/decrease in one variable each time the other variable goes up by 1 unit.

Example

The temperature y at different points on a mountain is recorded at different altitudes x .

Suppose we were to use a linear model $y = mx + c$.

a) Determine m and c (you can assume the line goes through $(0,70)$ and $(250,20)$).



b) Interpret the meaning of m and c in this context

c) Predict at what altitude the temperature reaches $0^{\circ}F$

Evaluating a Model



Example:

The current population of Bickerstonia is 26000. This year (2017) the population increased by 150. Matt decides to model the population P based on the years t after 2017 by the linear model:

$$P = mt + c$$

Why might this not be a suitable model?