Vedlegg A: Functions

0.1 Domain

The domain of a function $f(x)$ is the x-values for which $f(x)$ is valid.

0.2 Range

The range of a function $f(x)$ is all the values $f(x)$ can take. The range is determined by the function's expression and its domain.

0.3 Proportional Quantities

Given a constant a and two variables x and y. If

$$a = \frac{x}{y}$$

then x and y are **proportional** quantities.

0.4 Inversely Proportional Quantities

Given a constant a and two variables x and y. If

$$a = xy$$

then x and y are **inversely proportional** quantities.

0.5 Polynomial Functions

A polynomial function is a function consisting of a sum of powers with positive exponents and a variable as a base.

Polynomial functions have sub-titles determined by the highest exponent in the function expression. For constants a, b, c, and d, and a variable x, we have

function expression	function name
$ax + b$	1st degree function (linear)
$ax^2 + bx + c$	2nd degree function (quadratic)
$ax^3 + bx^2 + cx + d$	3rd degree function (cubic)

The language box

The validity domain of a function states the x-values for which the function makes sense in the practical situation it's used in.