Example: *database export*

The electric power, P, which is delivered by the battery as a function of the resistance, R, is:

$$P := \frac{100\,R}{(0.5+R)^2}$$

dependence on electric power of resistance

Find the maximum power of P for $0 \le R \le 20$ and export the dependence data so we can use them later on.

Solution:

We have the dependence function, which we will use to calculate the first derivative of the function and use it to find it's maximum.

$$a := \frac{d}{dR} P$$

We created variable, a, as a container for the derivative of function

$$maxPower := nonlinsolve(a == 0\ ,\ R)$$

Null of the first derivative is the extremum point

$$maxPower = 0.5$$

Variable ,maxPower ,contains the maximal power of P

$$P := curve2d\left(\frac{100\,R}{(0.5+R)^2}\ ,\ R\ ,\ 0\ ,\ 20\ ,\ 200\right)$$

Dependence data which is to be exported

Exporting the data to the database

Example: Database Import

The electric power P, which is delivered by the battery as a function of the resistance R, is:

$$P := \frac{100\,R}{(0.5+R)^2}$$

Dependence on electric power of resistance

Plot the power as a function of the resistance using the data saved in database file.

Solution:
The graph confirms the calculations we performed in the Database export.mdd file.

a := 0 ← Define variable

export example.db - a ← Import database object to import data from database into the variable a

a = 200 x 2 elements matrix ← Value after data import