

## Example 2: chicken fence

### Numerical approach – short version

This way uses the connection between the total length (e.g. 10m) and the fence's front length.

By using the spreadsheet a sequence can be generated ( $a_n = n/10$ ), which allows the localization of the maximum area. Depending on the element of the sequence for  $n = 0$  to  $n = 100$  the remaining length of the fence as well as the side length of the enclosure is given/calculated.

Then the area is calculated in column D. The maximum area can be determined just by scrolling the entries in the spreadsheet.

|    | A                           | B         | C        | D          | E      |
|----|-----------------------------|-----------|----------|------------|--------|
| 1  | $=\text{seq}(n/10,n,0,100)$ | $=10-a[]$ | $=b[]/2$ | $=a[]*c[]$ |        |
| 50 |                             | 4.9       | 5.1      | 2.55       | 12.495 |
| 51 |                             | 5.        | 5.       | 2.5        | 12.5   |
| 52 |                             | 5.1       | 4.9      | 2.45       | 12.495 |
| 53 |                             | 5.2       | 4.8      | 2.4        | 12.48  |
| 54 |                             | 5.3       | 4.7      | 2.35       | 12.455 |
| 55 |                             | 5.4       | 4.6      | 2.3        | 12.42  |

Helpful hints:

| You want...                       | Application                    | How to do it with TI-Nspire™  |
|-----------------------------------|--------------------------------|---|
| To insert a formula into a column | <b>Lists &amp; Spreadsheet</b> | Choose relevant cell (2 <sup>nd</sup> line from top) and open it with $\boxed{\text{enter}}$ . Begin with $\ominus$ to insert a formula. Hints for sequences can be found in 3:Data, 1:Generate Sequence  |
| To refer to a particular column   | <b>Lists &amp; Spreadsheet</b> | Referring to columns can be done from column formulae. Specify the column name (e.g. a) and add square brackets [, (].  |
| To work with approximate values   |                                | $\boxed{\text{ctrl-on}}$ , 8 1: Document settings] Change with $\boxed{\text{tab}}$ to Auto or Approximate. Open the options menu with $\boxed{\text{ctrl-on}}$ . Choose <i>Approximate</i> with cursor and confirm with $\boxed{\text{enter}}$ . |