

Spreadsheets in Maple

Maple's functionality can be used in spreadsheets. The following example will do a Left Hand Riemann sum for the following integral:

$$\int_1^3 x^2 dx$$

1) Creating a Spreadsheet

- a) Open a new Maple document
- b) Click on **Insert | Spreadsheet**
- c) Enter the name for the spreadsheet (you can change this later in **properties**)

2) Entering values into cells

- a) In cell A1 enter 1 (lower limit of definite integral)
- b) In cell B1 enter 3 (upper limit of definite integral)
- c) In cell C1 enter 20 (number of rectangles to be used)

3) Filling columns/rows

- a) Type 1 in cell A2

To fill cells A3 through A21

- b) Select cells A2 through A21 so that they are all highlighted
- c) Right-click on the highlighted cells and select **Fill | Detailed...** from the pop-up menu
- d) Set a step size of 1 and press OK to fill downwards

This should fill A3 through A22 with the numbers 2 through 20

Now we need a summary of cell references so that we can refer to cells for our computations

Summary of Cell References
~B1 refers to relative cell B1
~\$B1 refers to absolute column B, relative row 1
~B\$1 refers to relative column B, absolute row 1
~\$B\$1 refers to absolute cell B1

4) Creating the calculations

- a) In cell D1 type $(B1 - A1) / C1$ (this will calculate our Δx)
- b) In cell B2 type $A1$ (this will set the initial x-value)
- c) In cell B3 type $B2 + \$D\1 (this will calculate the 2nd x-value)
- d) Select cells B3 through B22 so they are highlighted
- e) Right-click on the highlighted cells and select **Fill | Down** (this will fill in all the x-values)
- f) In cell C2 type $B2^2$ (this will calculate the first function value)
- g) Select cells C3 through C22 so they are highlighted
- h) Right-click on the highlighted cells and select **Fill | Down** (this will fill in all the y-values)
- i) In cell D2 type $C2 * D1$ (this will calculate the area of the first rectangle)
- j) In cell D3 type $D2 + C3 * \$D\1 (this will calculate the area of the second rectangle)
- k) Select cells D4 through D22 so they are highlighted
- l) Right-click on the highlighted cells and select **Fill | Down** (this will sum up the areas)

5) Using Maple commands in the cells

- a) To get your answer as a decimal type `evalf(~D22)` in any open cell
- b) Maple commands can be used in the cell calculations at any time