CfE Third Level Maths & Numeracy

Project: Using a Spreadsheet 2

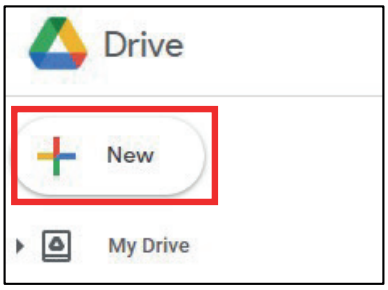
I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology.
MTH 2-21a / 3-21a

Task 2: Calculations

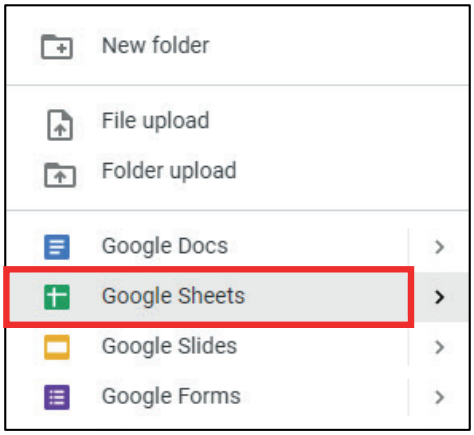
Spreadsheets are used in many industries to perform calculations. If you have completed *Using a Spreadsheet Task 1*, you will already have been introduced to the use of formulae within spreadsheets to produce numerical outputs. In this task, you will learn how to create your own formulae to perform calculations within a spreadsheet.

(a) Create a new spreadsheet:

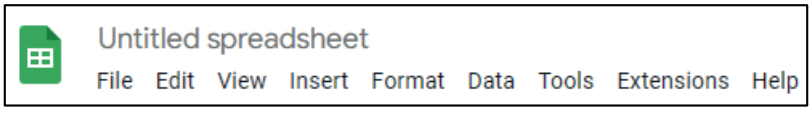
- Open your Google Drive and click on the '+ New' icon at the left-hand side.



- Scroll down and select 'Google Sheets' to open a new Google Sheets file.



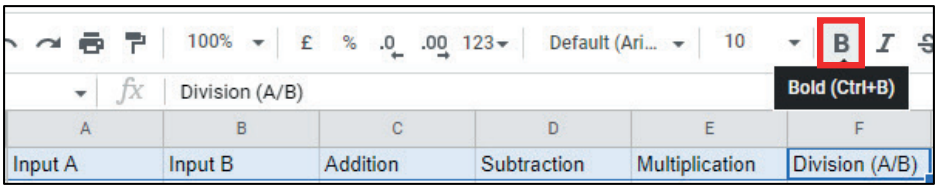
Click the box that reads *Untitled spreadsheet*, type *Using a Spreadsheet Task 2* and press ENTER on your keyboard. (Every time you type something into a cell, you should press the ENTER key on your keyboard.) This will automatically rename the file in your drive. Google Sheets will automatically save your changes as you go. If you wish to undo the last change you made, simply press CTRL-Z on your keyboard.



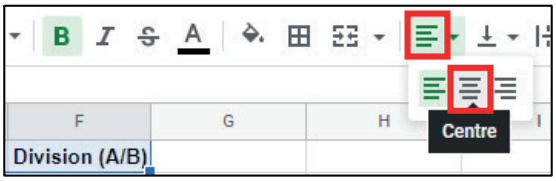
(b) Enter and format the headings:

- Click on cell *A1* and type the heading *Input A*. Press ENTER.
- Click on cell *B1* and type *Input B*.
- Click on cell *C1* and type *Addition*.

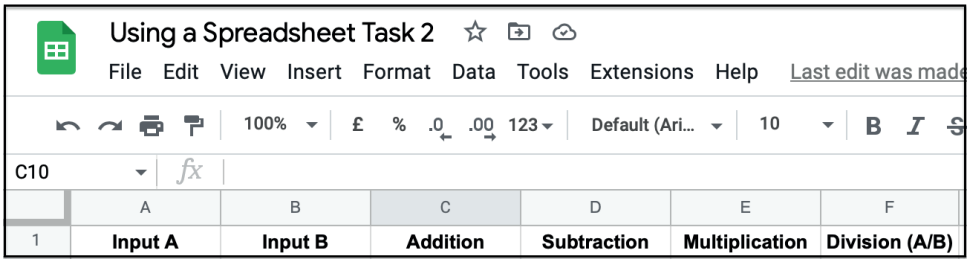
- In cell *D1* type, *Subtraction.*
- In cell *E1* type, *Multiplication.*
- In cell *F1* type, *Division (A/B).*
- Click on cell *A1*. Hold the cursor on *A1* and drag the cursor across the cells in row 1 until you reach cell *F1*. This will highlight all cells containing headings.
- Click on the 'bold' icon in the task bar to format each of the entries in these cells to bold font.



- Keeping the cells highlighted, select the 'cell alignment' icon, and select 'centre'.



Your spreadsheet should now look like this:



(c) Enter the formulae:

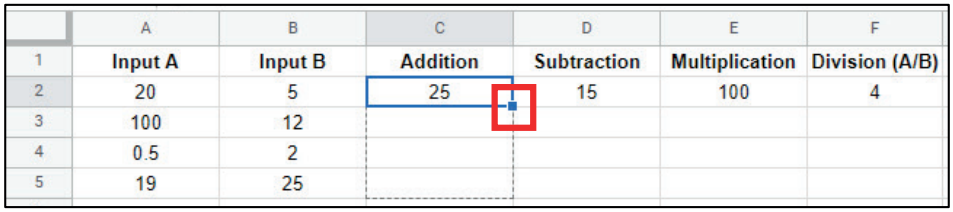
- Click on cell *A2* and type in the number *20*. Press ENTER.
- Click on cell *B2* and type in the number *5.*
- Click on cell *C2*. Type =, click on cell *A2*, type + and click on cell *B2*. Press ENTER. This will perform the calculation of adding the value in cell *A2* to the value in cell *B2.*
- Click on cell *D2*. Type =, click on cell *A2*, type - and click on cell *B2*. Press ENTER. This will perform the calculation of subtracting the value in cell *B2* from the value in cell *A2.*
- Click on cell *E2*. Type =, click on cell *A2*, type * and click on cell *B2*. Press ENTER. This will multiply the values in cells *A2* and *B2* together. (In spreadsheets, the * represents a multiplication symbol).
- Click on cell *F2*. Type =, click on cell *A2*, type / and click on cell *B2*. Press ENTER. This will divide the value in cells *A2* by the value in *B2*. (In spreadsheets, the / represents a multiplication symbol).
- Highlight cells *A2* to *F2* and centre the text.

(d) Extend the formulae:

- In cells *A3* to *A5,* type in a value of your choosing (you may choose any number at all. An example is shown on page 3).
- Do the same to cells *B3* to *B5.*
- Highlight cells *A3* to *F5* and centre the text.
- Click on cell *C2.*
- Using your cursor, hover over the blue square at the bottom left-hand corner of the cell until the

arrow changes to a cross.

- Hold the cross and drag it down until it covers cell *C5*, then release.



	A	B	C	D	E	F
1	**Input A**	**Input B**	**Addition**	**Subtraction**	**Multiplication**	**Division (A/B)**
2	20	5	25	15	100	4
3	100	12				
4	0.5	2				
5	19	25				

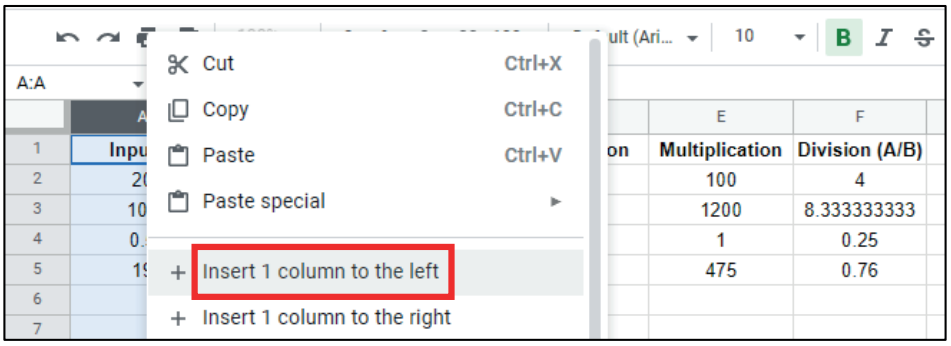
This will now apply the formula that is in cell *C3* to the values in cells *A3* and *B3*, *A4* and *B4*, and *A5* and *B5*.

- Repeat the process to populate the subtraction formula into cells *D3* to *D5*, the multiplication formula into *E3* to *E5* and the division formula into *F3* to *F5* (this can be done in one operation by highlighting *D2-F2* and dragging down).

If you change any of the values in the Input cells, the values in the formulae cells will update automatically.

(e) Further formulae:

- Click on column A to highlight the whole column
- Using your mouse or keypad, 'right click'
- Select the option 'Insert 1 column to the right'



This will shift each column one place to the right, leaving you with a blank column now in column A. Your formulae will automatically adapt to the new cells.

- In cell *A6*, type *Total*.
- In cell *A7*, type *Average*.
- In cell *B6*, type =SUM(*B2*:B5) and press ENTER. This formula adds each of the values in cells *B2* to *B5* together.
- Extend this formula vertically across to cell *C6* to calculate the sum of the values in cells *C2* to *C5*.
- In cell *B7*, type =AVERAGE(*B2*:B5) and press ENTER. This formula calculates the average (mean) value of each of the values in cells *B2* to *B5*.
- Extend this formula vertically across to cell *C6* to calculate the average of the values in cells *C2* to *C5*.

(f) Additional tasks:

Use the skills you have developed during this task to create your own spreadsheet calculator. Create a spreadsheet which calculates:

- The area and perimeter of a rectangle, given a length and breadth.
- The area of a triangle given the base and height.
- The volume of a cuboid given the length, breadth and height.