

## MSExcel Using it as a calculator II: Creating your own functions

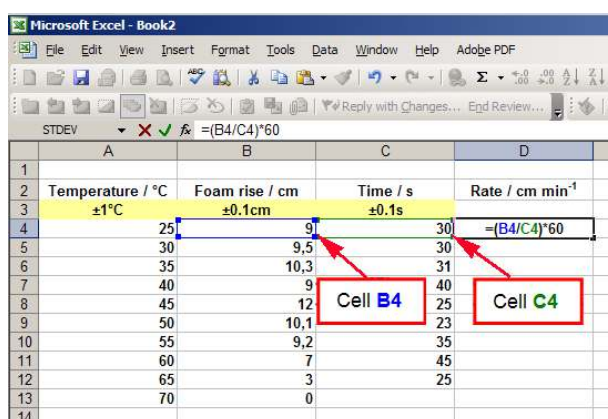
The data below shows the results from an experiment which investigated the effects of temperature on yeast peroxidase enzyme. This reaction produces a foam of oxygen bubbles. The reaction was measured by measuring the maximum height that the foam reached and the time it took to reach this height.

The student wanted to calculate the rate of increase in the foam height in cm per min.

Enter your data into a spread sheet and create a new column for the rates.

Enter your equation in the first cell. Start with the equals sign.

Left click on the cells containing the values that you want to use in the calculation.

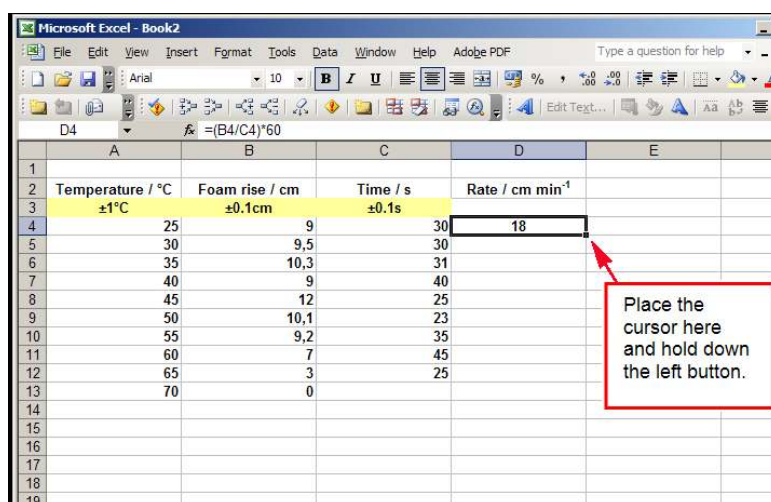


The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D
1				
2	Temperature / °C	Foam rise / cm	Time / s	Rate / cm min <sup>-1</sup>
3	±1°C	±0.1cm	±0.1s	
4	25	9	30	=(B4/C4)*60
5	30	9,5	30	
6	35	10,3	31	
7	40	9	40	
8	45	12	25	
9	50	10,1	23	
10	55	9,2	35	
11	60	7	45	
12	65	3	25	
13	70	0		
14				

Red boxes highlight 'Cell B4' and 'Cell C4' in the formula bar. The formula bar shows the equation  $=(B4/C4)*60$ .

Then press **Enter**



The screenshot shows the same Microsoft Excel spreadsheet after the calculation. The formula bar now shows the result  $18$  in cell D4. A red box highlights the bottom right corner of cell D4 with the text: "Place the cursor here and hold down the left button."

	A	B	C	D	E
1					
2	Temperature / °C	Foam rise / cm	Time / s	Rate / cm min <sup>-1</sup>	
3	±1°C	±0.1cm	±0.1s		
4	25	9	30	18	
5	30	9,5	30		
6	35	10,3	31		
7	40	9	40		
8	45	12	25		
9	50	10,1	23		
10	55	9,2	35		
11	60	7	45		
12	65	3	25		
13	70	0			
14					
15					
16					
17					
18					
19					

To repeat the calculation down the column place the mouse cursor on the bottom right of the cell. Hold down the left mouse button and pull the mouse down over the other boxes in the column.

When you let go of the mouse you will see that Excel has calculated the rates but the number of decimal places for the answers is variable.

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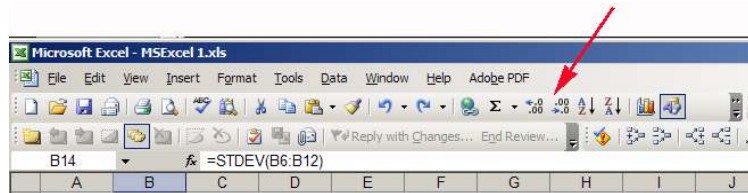
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Arial 10 B I U

D4  $= (B4/C4)*60$

	A	B	C	D
1				
2	Temperature / °C	Foam rise / cm	Time / s	Rate / cm min <sup>-1</sup>
3	±1°C	±0.1cm	±0.1s	
4	25	9	30	18
5	30	9,5	30	19
6	35	10,3	31	19,93548387
7	40	9	40	13,5
8	45	12	25	28,8
9	50	10,1	23	26,34782609
10	55	9,2	35	15,77142857
11	60	7	45	9,333333333
12	65	3	25	7,2
13	70	0		
14				
15				

You can adjust the decimal places using the **Add or Reduce Decimal Place** buttons in the tool bar.



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Arial 10 B I U

D4  $= (B4/C4)*60$

	A	B	C	D
1				
2	Temperature / °C	Foam rise / cm	Time / s	Rate / cm min <sup>-1</sup>
3	±1°C	±0.1cm	±0.1s	
4	25	9	30	18
5	30	9,5	30	19
6	35	10,3	31	20
7	40	9	40	14
8	45	12	25	29
9	50	10,1	23	26
10	55	9,2	35	16
11	60	7	45	9
12	65	3	25	7
13	70	0		
14				
15				
16				
17				