City University
School of Engineering and Mathematical Sciences
Common Part I
Computing ME1107

Microsoft Word

1. Typing mathematic equations

To start the mathematic equation editor, click **Insert** on the menu bar, then **Object** in the dropdown menu; choose **Microsoft Equation 3.0** in the object type menu**,** which will open the equation editor.

Math symbols and Greek letters can be inserted by click on the Equation toolbar. Use the arrow keys to move the cursor around to type in letters or numbers.

Getting help: On the **Help** menu, click **Microsoft Word Help**; search for "insert an equation". Click on the topic to see the step-by-step instructions.

Microsoft Equation 3.0 can also be used in **Microsoft Excel** and **PowerPoint**.

2. Drawing tool

To display drawing toolbar, click **View** on the menu bar, then **Toolbars,** then **Drawing.**

Getting help: On the **Help** menu, click **Microsoft Word Help**; search for "drawing". Click on **Draw with curves and freeform drawing objects** in the search results.

Drawing tool is also available in **Microsoft Excel** and **PowerPoint**.

Microsoft Excel

Reference: A Guide to Microsoft Excel for Scientists and Engineers
Bernard V Liengme, Butterworth-Heinemann

1. Filling in a series of numbers

Getting help: On the **Help** menu, click **Microsoft Excel Help**; search for 'autofill'. Select '**Automatically fill in data based on adjacent cells**' in the search result list, then '**fill in a series of numbers, dates or other items**'.

2. Entering a formula

Getting help: On the **Help** menu, click **Microsoft Excel Help**; search for 'formula'.

Exercise:

Area and Perimeter calculations				
length	6			
width	7			
area	42		=B3*B4	
perimetre	26		=2*(B3+B4)	

3. Relative and absolute cell reference

Getting help: On the **Help** menu, click **Microsoft Excel Help**; search for 'cell reference'. Select the topic on '**About cell and range references**' .

Exercise: Construct a worksheet as shown to display the pressure of a gas at various temperatures and volumes using the van der Waals equation:

$$P = \frac{RT}{V-b} - \frac{a}{V^2}$$

	A	B	C	D	E	F	G	H
1	**van der Waals Equation of State**							
2								
3		Gas	R	a	b			
4		CO_2	0.082058	3.59	0.0427			
5								
6	Pressure in atmospheres at varying T and V							
7	Volume	Temperature (K)						
8		250	260	270	280	290	300	310
9	0.05	1374.21	1486.61	1599.02	1711.43	1823.84	1936.25	2048.65
10	0.10	-0.98	13.34	27.66	41.98	56.30	70.62	84.94
11	0.15	31.63	39.28	46.93	54.58	62.22	69.87	77.52
12	0.20	40.67	45.88	51.10	56.32	61.53	66.75	71.97
13	0.25	41.52	45.48	49.44	53.40	57.35	61.31	65.27
14	0.30	39.84	43.03	46.22	49.41	52.60	55.79	58.98
15	0.35	37.45	40.12	42.79	45.46	48.13	50.80	53.47
16	0.40	34.98	37.27	39.57	41.87	44.16	46.46	48.76
17	0.45	32.64	34.65	36.67	38.68	40.70	42.71	44.73
18	0.50	30.50	32.29	34.09	35.88	37.68	39.47	41.27

1. Merge cells A1:H1 for the title
2. Enter the values in B8:H8 and in A9:A18 using the Series Fill method
3. In B9 enter the formula =(C4*B8)/(A9-E4)-D4/(A9*A9).
4 Copy B9 to C9, see the change in formula in C9.

5. Undo the copy, modify B9 using mixed and absolute reference.
6. Copy B9 to the range B9:H18
7 Format the cells to improve the appearance.

8 copy the table to a new worksheet
9 Give C4, D4 and E4 a name, R0, a and b respectively
9 Modify B9:H18, using R0, a and b in the formula

4. Charts

Getting help: On the **Help** menu, click **Microsoft Excel Help**; search for 'chart'.

Example: Line Chart with Two Data Series

	A	B	C
1	**Month**	**Max**	**Min**
2			
3	Jan	-10	-15
4	Feb	-9	-14
5	Mar	1	0
6	Apr	5	0
7	May	10	3
8	Jun	20	10
9	Jul	28	15
10	Aug	32	13
11	Sep	25	10
12	Oct	16	5
13	Nov	12	0
14	Dec	10	-1
15			

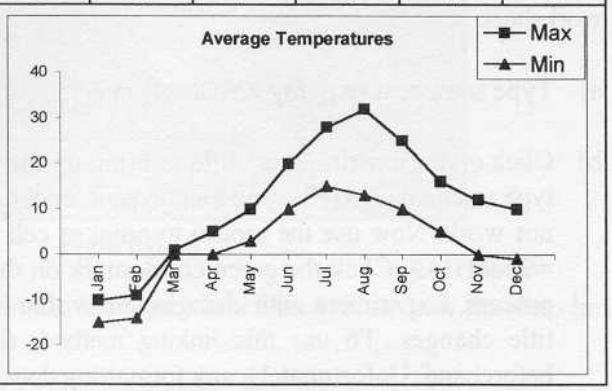

Figure 6.14