**Please open the arithmetic.xlsx file before starting these notes**

## Contents



caroline.cahill@setu.ie


# Fundamental Formatting:

## A Workbook

By default Excel will automatically add the filetype extension of ***.xlsx***

**Filename ≡ workbook name**

So the full workbook name is "***filename*.xlsx**"

EXERCISE:

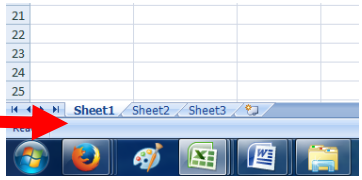
- Download the *Arithmtic* file from your class website
- Save it as as *SETU_Arithmetic* (using the Save As option) to your OneDrive
- What is the full filename (or workbook name) including the file extension?

  _____

## Worksheets

Similar to pages within a workbook.

The default is 3 worksheets named _____,




_____ and _____

## Editing worksheets

**Right click** on "**Sheet 1**" will allow you to select what you wish to do i.e. "*Rename*" the sheet, "*Delete*" the sheet", "*Insert*" another new sheet etc.

EXERCISE:

- Use right click to
  - Rename Sheet 1 as "**Fundamentals**"
  - Delete Sheet 2

# Formatting cells in Excel

## Home tab

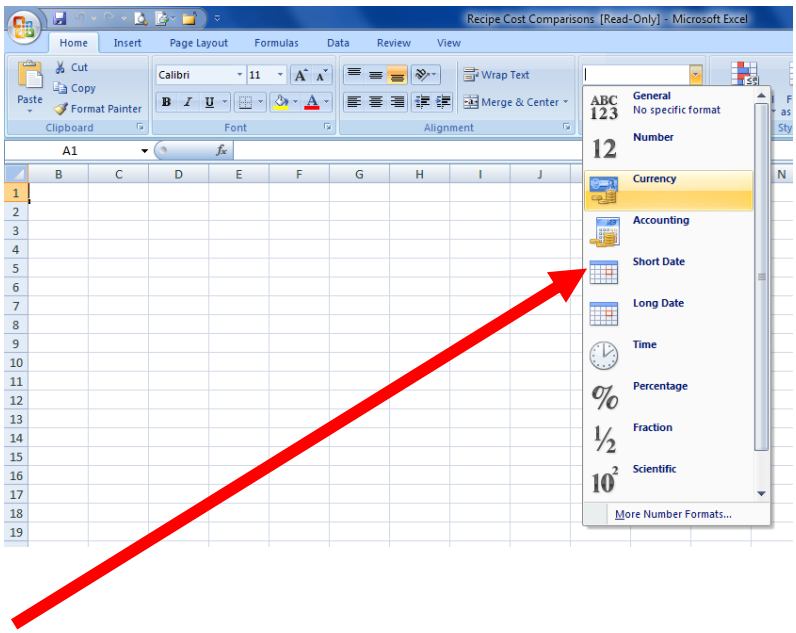
Many of the formatting are similar to Word's formatting tabs in Excel.

## Formatting numbers

You need to be clear in excel what type of values you're working with i.e.

Should the numbers be

- euros?
- A number of employees?
- The employees ID number?
- time?
- date? etc.




➔ ***Open your blank Sheet 3 and type the numbers 1 to 5 into Column A and change these to €***

You can also use the "**More Number Formats…**" to open the dialog box for more options

TIP: remember that if you accidentally change a value format to, for example, euros and then realise the value in the cell should represent an employee number, you can revert back your number style to **General** here

➔ ***Oops, the numbers 1 to 5 should have been a regular number:***
***reformat as "General" number***

## Page Layout

Here you can change the page orientation, the size of the printable page etc.

➔ ***Press CTRL+____ to open the Print Preview***

➔ ***Press Esc to get back into your workbook***

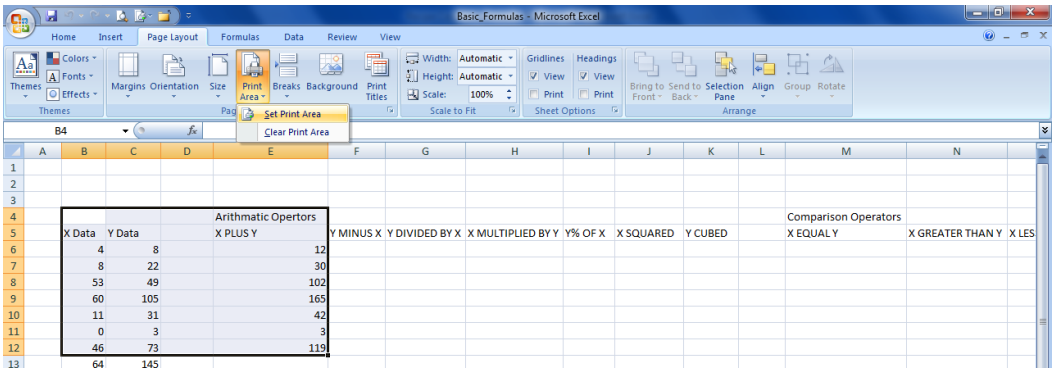
### Printing a Particular part of a worksheet

Set print area

Open the Arithmetic worksheet

It's important to be familiar with how to use the **Print Area** feature.

Defining a Print Area marks a specific area for printing

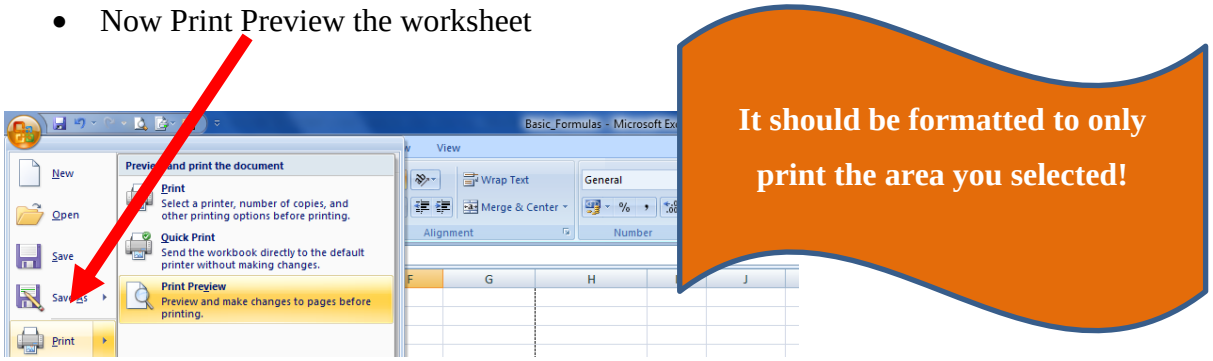



EXERCISE:

- Select the area you want to print
- Under **Page Layout**, click on **Print Area** and select **Set Print Area**

## Print Preview

- Now Print Preview the worksheet




Remove the set print area

- return to the **Page Layout** tab and **Print Area** option to **Clear Print Area**

## Deleting extra rows

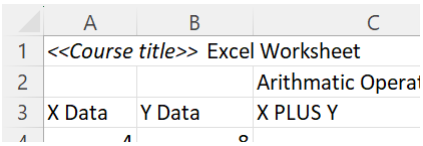
EXERCISE:

- Cut and Paste "<<***Course title***>> ***Excel Worksheet***" from cell A1 to cell B1
- Row 1 & 3 are currently empty so select them (clicking on the numbers to the left of the screen) and right click to delete them

## Deleting extra columns

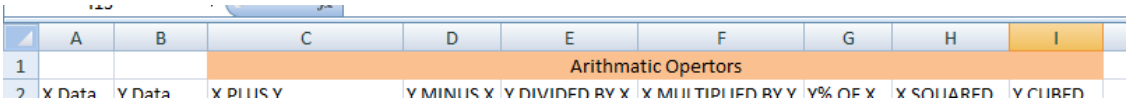
EXERCISE:

- Column A is now currently empty so select it (clicking on the letter A to the top of the screen) and right click to delete it
- Repeat this for empty column C

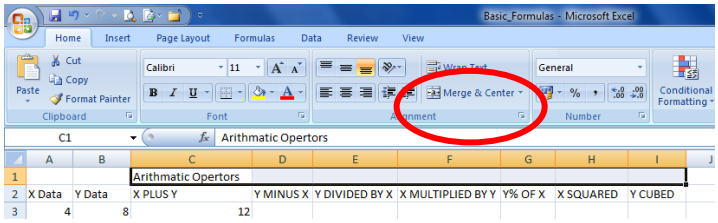


## Formatting column/row headings

You want heading the heading "Arithmatic Operators" to look like this:




EXERCISE:




- Select these cells as shown here (wherever the title "Arithmetic Operators is)
- Select the "**Merge and Centre**" button
- Use the Home tab to change the **fill colour** of this new heading

- Repeat this for the "**Comparison Operators**" which should be merged and centred across the headings "X EQUAL Y" to "X NOT EQUAL Y"
- Change its fill colour to match the other one (the last used colour should be still on the "fill bucket" icon)

# Fundamental Formulae:

## Using relative cell referencing

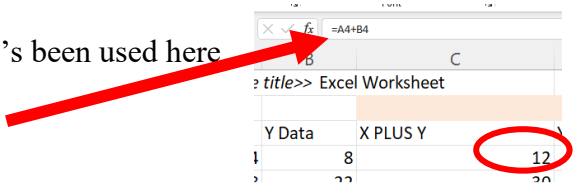
EXERCISE:

In cell C4, create the formula to add the X and Y data =A4+B4

In cell C5, create the formula to add the X and Y data =A5+B5

In cell C6, create the formula to add the X and Y data =A6+B6

When you select cell C4 you can read the formula that's been used here in the formula bar across the top




=A3+B3

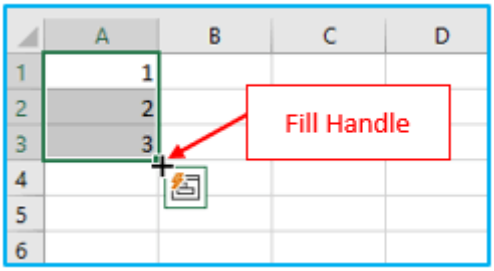
I can hear you complaining already about how boring the repetition this is!! So… here comes how to ***copying formula***…

## Copying Formula: The fill handle

This is one of the best features of Excel!!!

Put your cursor where there is a formula i.e. cell C4

Put your cursor to the bottom right of the cell and notice how it change to a narrow cross




Click and drag this down to the end of the dataset and Excel with automatically copy the formula

## Fundamental Arithmetic Formula

Adding cells together E.g. =A1+A2+B5+D19

Subtracting cells E.g. =A1-A2

Multiplying cells E.g. =A1*A2

Dividing cells E.g. =A1/A2


***TIP:*** If you've got this number pad on the right of your laptop, ensure your **Num Lock** is switched on while using Excel

Percentages E.g. =5%*A2 (Remember "of" in Maths is "multiply" as in 5% of A2)

Square of a value E.g. =A2^2 ***or*** =A2*A2

Cube of a value E.g. =A2^3

# How to Write Comparison Operators

## Comparing the value of cells

- **Is one cell equal to the other?** =

Is the X value equal to the Y value in row 3? Expected answer is "True" or "False"

=A3=A4 (the answer in this case should be FALSE because it replaces the cells with the actual values and "4 equal 8" is a FALSE statement

- **Is one cell greater than the other?** >

Is the X value greater than the Y value in row 3? Expected answer is "True" or "False"

=A3>A4 (the answer in this case should be FALSE because it replaces the cells with the actual values and "4 greater than 8" is a FALSE statement

- **Is one cell less than the other** <

Is the X value less than the Y value in row 3? Expected answer is "True" or "False"

=A3<A4 (the answer in this case should be TRUE because it replaces the cells with the actual values and "4 less than 8" is a TRUE statement

- **Is one cell not equal to the other** <>

(The *less than* and *greater than* signs together)

Is the X value less than the Y value in row 3? Expected answer is "True" or "False"

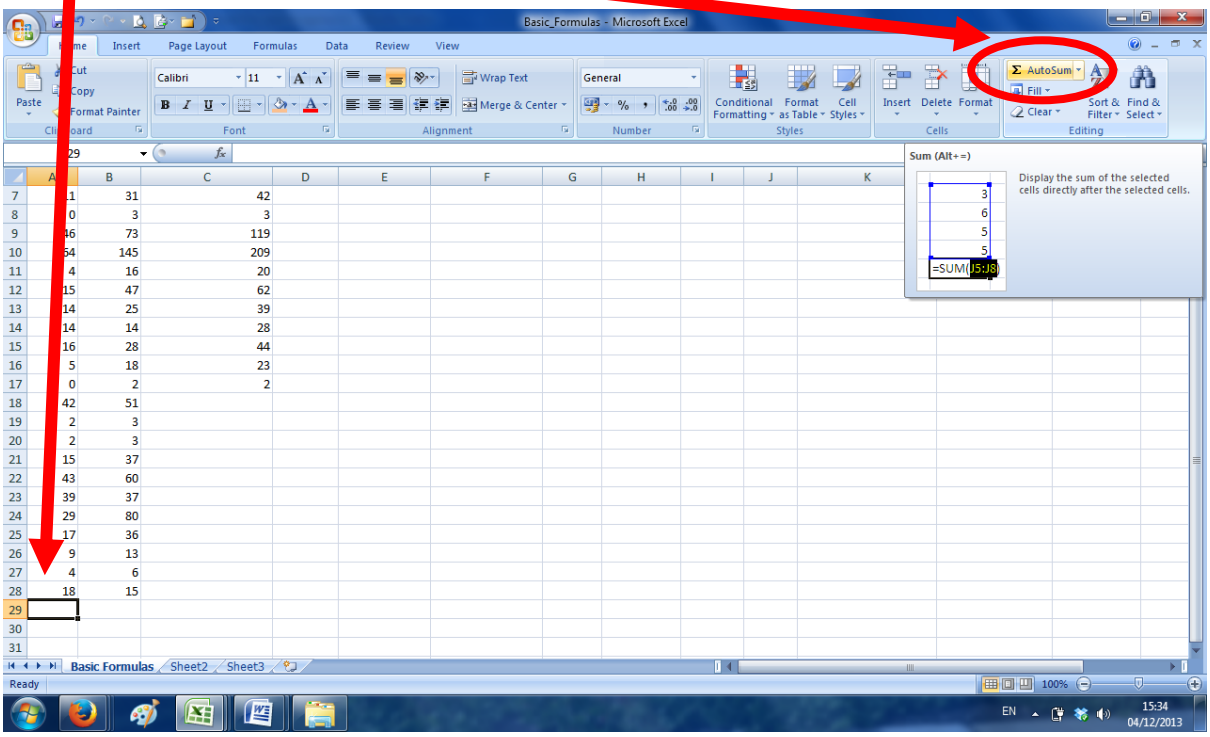
=A3<>A4 (the answer in this case should be TRUE because it replaces the cells with the actual values and "4 less than 8" is a TRUE statement

## AutoSum

Because adding values is one of the most common features, there is an AutoSum button at the top right of the Home tab

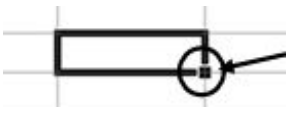
Exercise:

- Add all the X values together and put the answer underneath
- Select the cell under the dataset (on mine it's cell A29)
- Click the **AutoSum** button




- Check that Excel is automatically picking up the correct values i.e. all X values
- Hit return for your answer (this should be 534)
- Use the fill handle to copy this formula across to the Y values

## Autofill



Under the x values where you just created your AutoSum formula, click the **fill handle** at the bottom right of the cell and drag across to Column B (the "Y" values)

- Use the AutoSum button to add all Y CUBED values (Answer should be 5922429)

## Average

You want to Insert a new Column C that is to contain the **Average of the X data and the Y data** for each row

Create the formula to complete this, formatted to one decimal place

## Formatting the Titles:

### Wrap Text

- Replace "Course Title" with your own BSc course title, ensuring any Italics formatting is turned off
- Select Row 3 where all the titles of the columns are
- Turn on Wrap Text and re-format the Column Widths as necessary:
- Format the text to Bold
- Decrease the Widths of the columns
- Double click between Row 3 and Row 4 to increase the height of the row as necessary
- Change the Fill colour to Black and the Font Colour to White
- Change "Arithmatic Operators" to "Arithmetic Operators"

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BSc in XXX Excel Worksheet | | | | | | | | | |
| 2 | | | | Arithmetic Operators | | | | | | |
| 3 | X Data | Y Data | Average of X and Y | X PLUS Y | Y MINUS X | Y DIVIDED BY X | X MULTIPLIED BY Y | Y% OF X | X SQUARED | Y CUBED |
| 4 | 4 | 8 | 6.0 | 12 | 4 | 2 | 32 | 0.32 | 16 | 512 |
| 5 | 8 | 22 | 15.0 | 30 | 14 | 2.75 | 176 | 1.76 | 64 | 10648 |

## Freezing Panes

When working with a large dataset like we are doing, sometimes you want particular value to stay visible on the screen the whole time

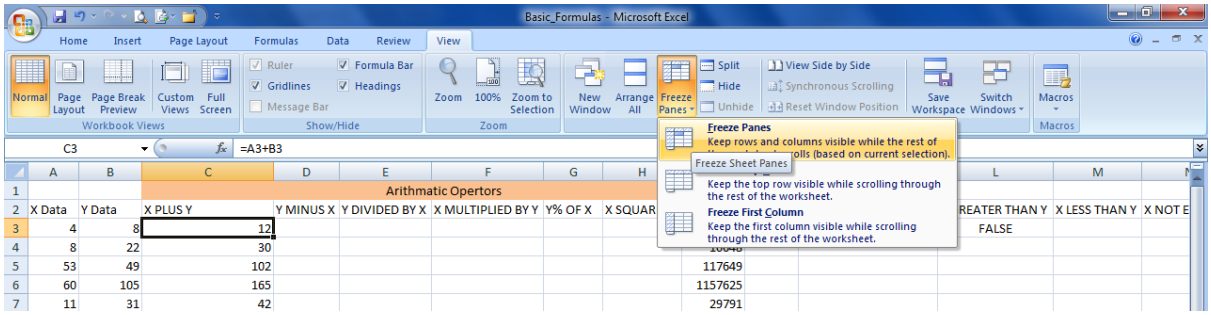
Freezing panes allows you to keep a portion of the screen visible while the rest of the screen scrolls

We want columns A and B to remain visible

We also want rows 1 and 2 to remain visible

**Select C3**

Under the **View** tab, click on **Freeze Panes** and choose **Freeze Panes**




Scroll down the sheet now… ah, the little pleasures in life!

## Unfreezing Panes

You can unfreeze the panes by simply repeating what you did you did to Freeze them, it's like an on/off switch

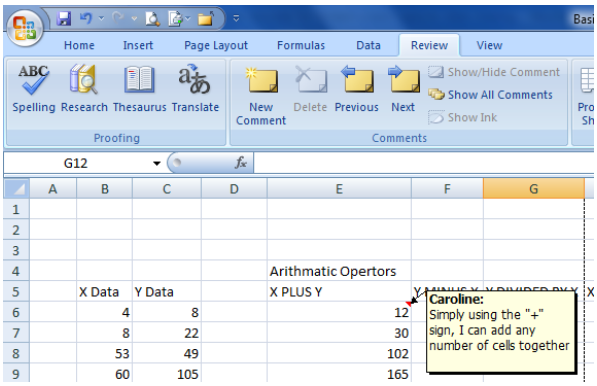
## Review tab

One useful feature here is that you can add a comment to a cell without it effecting the worksheet itself

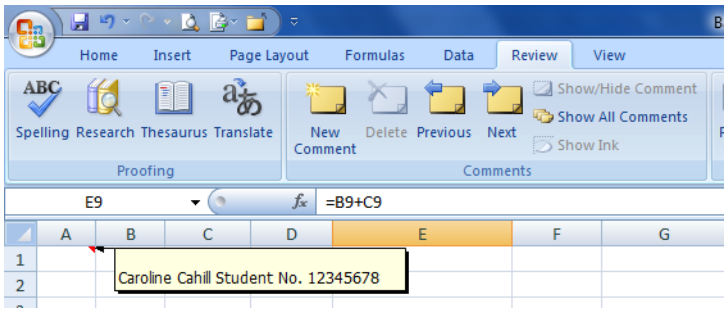
### New Comment

EXERCISE:

- Add a new **comment** in cell A1 that includes **your name, student number and college email address**
- Click anywhere (in any cell) on the worksheet to return to it
- Return to the "Review" tab and "Edit Comment" and delete your student number




- Resize the text box containing your comment to allow it to be read across one line:

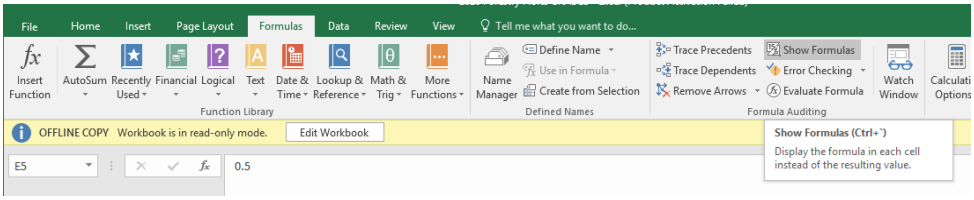


## Display formulas on a worksheet


Sometimes you will want to be able to view the formulas you've created

By default, Excel shows you the answer to the formula
To show your formula's go to the **Formulas** ribbon

Turn on/off the **Show Formulas** tab




## Headers and Footers

These are not visible unless in Print Preview of your file.

You can add a header or footer via the **Insert** tab

- Add **your name** into the centre of the worksheet header

You will need to go into Print Preview to see your changes

## Charts

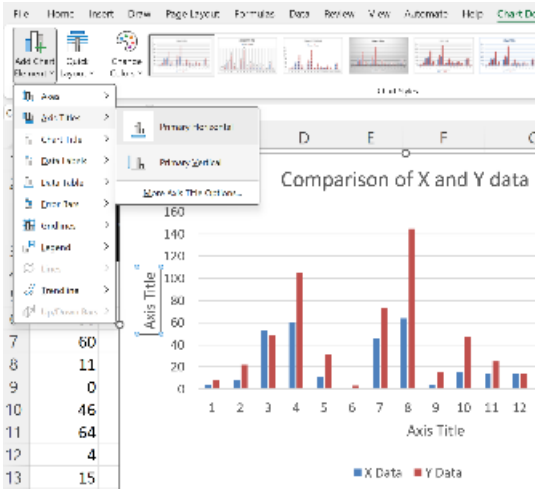
To create a chart, where possible first step is to select the data that you want represented visually:

- Select the dataset from A3 down to B20
- Click on **Insert** and have a look at the **Recommended Charts**
- Choose to insert a **Cluster Column** chart

*NOTE* although it's now visually easier to see the difference in values between X and Y, does it all make sense to an unfamiliar reader?

**A chart is only complete if someone can understand what all the content represents:**

- Rename the **Chart Title**
- 
- '**Add Chart Elements**' and '**Add Titles**' to the horizontal and vertical data

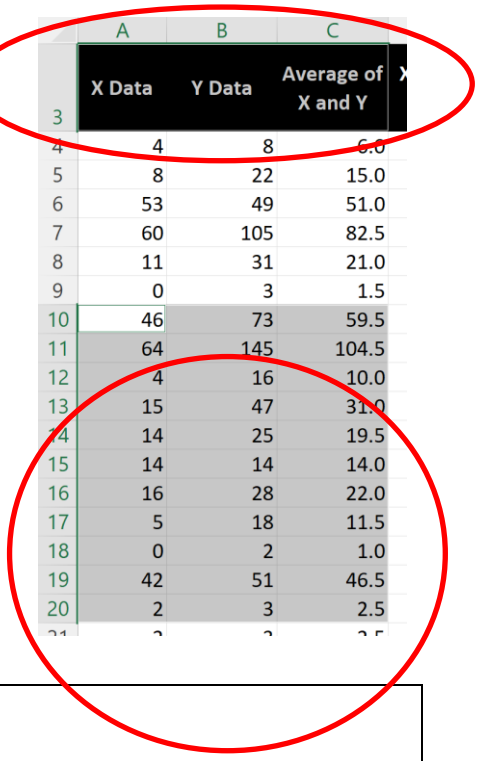



- '**Move the chart**' to a '**New Sheet**'
  - Named this new worksheet "**Chart: Samples"**

## Graphically Comparing Values to the Average

You wish to select the three column titles A3:C3 and ALSO select A10:C20 at the same time


Click **CTRL** and select non-adjacent cells



| | A | B | C |
|---|---|---|---|
| 3 | X Data | Y Data | Average of X and Y |
| 4 | 4 | 8 | 6.0 |
| 5 | 8 | 22 | 15.0 |
| 6 | 53 | 49 | 51.0 |
| 7 | 60 | 105 | 82.5 |
| 8 | 11 | 31 | 21.0 |
| 9 | 0 | 3 | 1.5 |
| 10 | 46 | 73 | 59.5 |
| 11 | 64 | 145 | 104.5 |
| 12 | 4 | 16 | 10.0 |
| 13 | 15 | 47 | 31.0 |
| 14 | 14 | 25 | 19.5 |
| 15 | 14 | 14 | 14.0 |
| 16 | 16 | 28 | 22.0 |
| 17 | 5 | 18 | 11.5 |
| 18 | 0 | 2 | 1.0 |
| 19 | 42 | 51 | 46.5 |
| 20 | 2 | 3 | 2.5 |

***HOW?***

**Select A3:C3**

**Hold down the CTRL key**

**Select A10:C20**

- Go to **Insert/Recommended Charts**
- Choose a **Cluster Column chart**
- Add it into a new, appropriately named worksheet
- Format the titles to ensure it's logical to the reader what the chart represents
- Format the design as you wish

**Please also, let me know if you're having any trouble with understanding any sections… I'm here to help!**