COMP1022Q Review Questions Week 2
Basic Understanding of Cell Formulas

These practice questions, as well as the answers, are released for the content of each week. These are just for you to practice. You don't have to hand them in. There's no marks for doing them, but it will help your understanding if you go through them.

Q1) You can put a cell formula in any cell. Often the formula refers to a particular cell, like the formula you can see in cell B2 below. The formula in B2 refers to cell A2.

	A	B
1	Lucky money which I tell people I got during Chinese New Year	Actual lucky money I got during Chinese New Year
2	450	= A2 + 3000

One of the following statements is wrong. Which one is wrong?

    A) In a cell formula, `A2` refers to cell A2
    B) In a cell formula, `$A2` refers to cell A2
    C) In a cell formula, `A$2` refers to cell A2
    D) In a cell formula, `A2$` refers to cell A2

Answer (A/B/C/D): _____

Q2) Here is a worksheet.

	A	B	C	D
1	Spending each weekday	Including things paid by Dad	Spending each Sat/Sun	Including things paid by Dad
2	230	330		
3	90			
4	140			
5	70			
6	110			
7			280	??
8			180	

The formula in cell B2 is `=$A2 + 100`. It is copied and pasted to cell D7. Which one of the following is the formula in cell D7 after the copy and paste?

    A) `=$A2 + 100`   E) `=$A2 + 330`
    B) `=$A3 + 100`   F) `=$B2 + 100`
    C) `=$A4 + 100`   G) `=$C2 + 100`
    D) `=C4 + 100`   H) `=$A7 + 100`

Answer (A/B/C/D/E/F/G/H): _____

Q3)

Here is a worksheet.

	A	B	C
1	Cute?	Wealthy?	Has house?
2	TRUE	FALSE	FALSE
3			
4	=AND(OR(A2, B2), C2)		

What is the result of the formula shown in cell A4? For this question you don't need to describe what the formula does, just write the result of the formula.

Answer: _____

Q4)

Someone creates a worksheet. In the worksheet, cell B4 contains a formula which checks the value entered in cell B2. You need to write the formula in cell B4 so that it shows TRUE if the number in cell ~~A2~~ B2 is inside the range of 0 to 4.3 (which is the range used at HKUST when your CGA is calculated), otherwise it shows FALSE. You can see two different examples showing the worksheet being used here:

	A	B
1		
2	Enter the CGA:	4.4
3		
4	Is the number OK?	FALSE

	A	B
1		
2	Enter the CGA:	2.8
3		
4	Is the number OK?	TRUE

Use AND for this question. You don't need to use IF for this question.

What is the formula in cell B4?

Answer: _____

Q5)

What is the result of the formula shown below in cell A2?

	A	B
1	4	2
2	=A1=B1^B1	
3		

Answer: _____

Q6) Column A shows a list of students in the HKUST Dance Society. Soon there will be a society meeting. However, the meeting will only happen if enough people say they are going to come. Every person has been asked if they will come, and the results are shown below.

	A	B
1	Name	Will you come?
2	Ann	Yes
3	Ben	No
4	John	Yes
5	Tina	Yes
6	Tom	No
7	Sally	Yes
8	Mary	No
9		
10	??	

To find out if the meeting will go ahead, the following formula is entered into cell A10. Based on the result of the formula, will the meeting go ahead?

```
=IF( COUNTIF(B2:B8,"Yes") > COUNTIF(B2:B8, "No"),
     "Meeting will go ahead", "Meeting is cancelled" )
```

Write YES if the meeting will go ahead, or NO if the meeting is cancelled: _____

Q7) Here is a worksheet.

	A	B
1	Possible Purchase	Price
2	Latest iPhone	$ 5,900.00
3	Latest Samsung phone	$ 5,400.00
4	Latest Xiami phone	$ 1,600.00

Cell B2 to cell B4 have been displayed using the currency format. You can ignore the dollar sign shown at the start of those cells when you answer this question, because the dollar signs are not actually inside the content of the cells, they are just displayed by Excel.

You need to write a formula to find **the most expensive item** among the three items. For this question you can **only use one or more IF**, i.e. no other cell formula functions such as AND and OR can be used for this question. This is to force you to get some useful practise with IF!

The 3 items shown in the worksheet could be any items, of any price, in any random order, but the prices will always be shown in cells B2, B3 and B4, and the corresponding names of those items will always be shown in cells A2, A3, and A4.

Your formula needs to produce the name of the most expensive item.

Answer: _____

_____

Q8)

In the following worksheet you enter your surname in cell B2, and your other name(s) in cell B1. A formula in cell B4 shows you what your name will look like on your Hong Kong ID card. Another formula in cell B5 tells you whether your name will fit on a Hong Kong ID card, which has enough space to display 40 characters.

	A	B
1	Enter your name(s) except your surname:	David
2	Enter your surname:	Rossiter
3		
4	Your name will look like this in a HKID card:	ROSSITER, David
5	Let's check whether it will fit on one line of a HKID card:	TRUE

Part A. What is the formula in cell B4? Use CONCATENATE() in your answer. If possible, your answer should generate a space after the comma.

Answer: _____

Part B. What is the formula in cell B5? It will show TRUE if the content of cell B4 is less than or equal to 40 characters. Otherwise, it will show FALSE.

Answer: _____

Answers to Week 2 Review Questions

Q1) The answer is D.

When you refer to a cell in a formula it has to be like this: `A2` or `$A2` or `A$2` or `$A$2`. You can't use `A2$`. So the answer to this question is D.

Q2) The answer is H.

For this question the cell formula `=$A2 + 100` is copied to a new cell. The new cell is down 3 rows and across 2 columns from the cell which is being copied. That means that the `$A` in the `$A2` won't change, because of the `$`. However the `1` in `$A2` will change. We are going down 5 rows so the `1` will change to 2+5 = 7. The '+ 10' doesn't change. So the new formula will be `=$A7 + 100`, which is H. (However, for this particular example the new formula in cell D7 isn't very useful!)

Q3) The answer is `FALSE`.

For a formula which uses brackets you would typically work from the inside and then move outwards. So in this case you would do `OR(A2, B2)` first, work out the result for that, then use the result to do the `AND`. So in this case the general idea is `=AND(` *result of OR(A2, B2)* `, C2)`. For OR the result is `FALSE` if both inputs are `FALSE`, otherwise the result is `TRUE`. So the result of `OR(A2, B2)` is `TRUE`, because in this case the two inputs are `TRUE` and `FALSE`. Now you can do `=AND(` *result of OR,* `C2)`, which is `=AND(` *TRUE* `, C2)`. For AND the result is `TRUE` if both inputs are `TRUE`, otherwise the result is `FALSE`. So the final answer is `FALSE`, because the two inputs are `TRUE` and `FALSE`.

Q4) The answer is ~~`=AND(A2>=0, A2<=4.3)`~~ `=AND(B2>=0, B2<=4.3)`.

The formula needs to produce `TRUE` if the number in cell B2 is inside the range 0 to 4.3. If it is not in that range, it needs to produce `FALSE`. The simplest way to do that is:

~~`=AND(A2>=0, A2<=4.3)`~~ `=AND(B2>=0, B2<=4.3)`

(If you are making a formula which produces `TRUE` or `FALSE` then usually you don't need `IF`).

Q5) The answer is `TRUE`.

When you have a formula like `=A1=B1^B1` the first thing you might do is stop thinking about the '=' on the left, because all cell formulas have that. So now you have `A1=B1^B1`. The left side (`A1`) refers to whatever is in cell `A1`. The right side (`B1^B1`) means the content of cell `B1` to the power of itself. In this case it is 2^2, which is 4. So now we have 4=4, which means 'is 4 the same as 4?' So the final answer is `TRUE`.

Q6) The answer is `YES`. The formula produces a message that the meeting will go ahead if more people say 'Yes' than say 'No'. You can see there are four 'Yes' and three 'No', so in this situation that means the meeting will go ahead. So the answer in this situation is 'YES'.

Q7) Here is one possible answer (it does several comparisons, checking what is *bigger*):

`=IF(B2>B3, IF(B2>B4, A2, A4), IF(B3>B4, A3, A4))`

Here is another answer (it does several comparisons, checking what is *smaller*):

```
=IF(B2<B3, IF(B3<B4, A4, A3), IF(B4<B2, A2, A4))
```
The above answers don't use `AND` and `OR`. Here's an answer which uses `IF` and `AND`:
```
=IF(AND(B2>B3, B2>B4), A2, IF(AND(B3>B2, B3>B4), A3, A4))
```

Q8) Part 1. The answer is `=CONCATENATE( UPPER(B2), ", ", B1)`
The main task here is to join together three (not two) pieces of text. If you look at the result you can see the three pieces of text are:

1. The surname in cell B2, followed by:
2. A comma and a space, followed by:
3. The other names in cell B1

ROSSITER, David

In the world of computers we use the word *concatenate* when we talk about joining things together in this way. For example, `CONCATENATE(B2,B1)` 'glues together' (concatenates) the contents of cells B2 followed by the contents of cell B1. In this case the result of `CONCATENATE(B2,B1)` would be: `RossiterDavid`

However, for this question to get the correct result we need to concatenate three things in total. One way to do that is `CONCATENATE(B2, ", ", B1)`. The middle part `", "` means '*a piece of text which is a comma followed by a space*'. The result will be: `Rossiter, David`

However, this is not the final answer! If you look carefully at the result shown in the question, you will see this:

	Your name will look like	
4	this in a HKID card:	ROSSITER, David

In cell B4, you can see that the surname has somehow been converted to all capital letters i.e. `ROSSITER`. The way to do that is to use `UPPER()`. In computer language capital letters like A, B, C, and D are called 'upper case letters'. `UPPER(B2)` converts the text in cell B2 into upper case letters. So the final answer is:
```
=CONCATENATE( UPPER(B2), ", ", B1)
```
You can also use `&` to do concatenation. So another possible answer is this:
```
=UPPER(B2) & ", " & B1
```

Part 2. The answer is `=LEN(B4)<=40`
In Part 2 we want to check the length of the name, to see whether it will fit in a HK ID card. It needs to be 40 characters or less. The way to determine how many characters are being used is `LEN()`. It gives you the LENgth – in other words, how many characters there are. Spaces and commas are also included in the count. For example, if cell B4 contains `ROSSITER, David` then `LEN(B4)` will give a result of 15. For Part 2 we need to check that this number is less than or equal to 40. So the answer is:
```
=LEN(B4)<=40
```

This will give a result of `TRUE` if the length of the name is <=40 characters. Otherwise, the result will be `FALSE`.