

Lesson 3-21: Extract text from delimited strings using the FIND and LEN functions

Here are two examples of international telephone numbers.

+44 (0)113-4960227 (a UK telephone number)

+356 (0)2138-3393 (a Maltese telephone number)

The *country code* (or international dialling code) is shown as a + symbol followed by one or more numbers. The *NDD* (National Direct Dialling prefix) is shown in brackets. This is the access code used to make a call within the relevant country but is omitted when calling from outside the country. The *Area Code* consists of the numbers after the closing bracket but before the hyphen.

In this lesson, you'll use the FIND and LEN functions, in combination with the LEFT and MID functions, to extract the country code, area code and phone number from an international telephone number.

- 1 Open *Phone Book-1* from your sample files folder.
- 2 Insert a FIND function into cell C4 to find the first occurrence of an opening bracket within the telephone number.
 1. Click in cell C4.
 2. Click Formulas→Text→Find.

The FIND function demands three arguments. The first is the character to find (in this case the opening bracket), the second is the text to search within (in this case the telephone number in cell B4). There's also an optional argument that allows you to begin the search at a specified position within the string.

3. Complete the dialog as follows:

Find_text	"("	= "("
Within_text	B4	= "+44 (0)113-4960227"
Start_num		= number

Note that you don't have to manually type the quotation marks around the text in the Find_text argument. Excel will helpfully add them for you automatically.

4. Click the OK button.

The number 5 is shown in cell C4. This is because the opening bracket is positioned five characters from the left of the string +44 (. Note that the space before the opening bracket is counted as a character.
- 3 Insert a FIND function into cell D4 to find the first occurrence of a closing bracket within the telephone number.

Repeat *Step 2*, but use a closing bracket for the Find_text argument.
- 4 Insert a FIND function into cell E4 to find the first occurrence of a hyphen within the telephone number.

note

Avoid leading and trailing spaces with the TRIM function

In *Step 6* you extracted the country code using the LEFT function. This could result in strings with a trailing space such as:

```
" +44 "
"+356 "
```

Because you can't see the trailing space this doesn't seem to matter.

Trailing spaces cause many problems when comparing data because strings that appear to be the same visually are, in fact different:

```
= "+44 " = "+44"
(returns FALSE)
```

```
= "+44" = "+44"
(returns TRUE)
```

For this reason it is good practice to always remove leading and trailing spaces using the TRIM function.

You could have used the TRIM function in *Step 6* like this:

```
=TRIM(LEFT(B4,C4-1))
```

If this seems a little too complex, you could also have placed the trimmed country code in a different column and then used the untrimmed result as an argument like this:

```
=TRIM(G4)
```

Repeat *Step 2*, but use a hyphen ("-") for the Find_text argument.

- 5 Insert a LEN function into cell F4 to find the total number of characters in the telephone number.

1. Click in cell F4.
2. Click: Formulas → Text → Len.
3. Click Cell B4 for the single argument for this function.
4. Click the OK button.

The length of the telephone number string (18 characters) is displayed in cell F4.

- 6 Insert a LEFT function into cell G4 to extract the country code.

The correct arguments are:

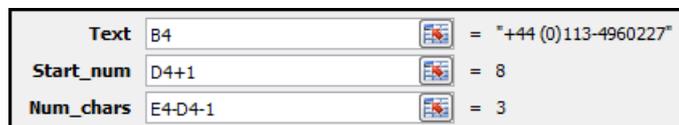


Note that C4-1 is used for the number of characters to avoid returning the opening bracket. This could result in a trailing space (see sidebar for a way to remove trailing spaces).

- 7 Insert a MID function into cell H4 to extract the area code.

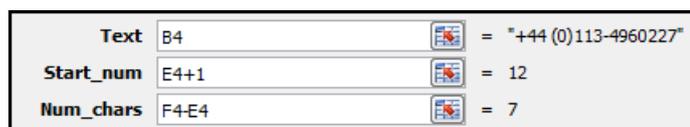
The MID function was covered in: *Lesson 3-20: Extract text from fixed width strings using the LEFT, RIGHT and MID functions.*

The correct arguments are:



- 8 Insert a MID function into cell I4 to extract the phone number.

The correct arguments are:



- 9 AutoFill cells C4:I4 into cells C5:I18.

	A	B	C	D	E	F	G	H	I
			Position of opening bracket (Position of closing bracket)	Position of Hyphen	Length of entire string	Country Code	Area Code	Phone Number
3	Company	Telephone							
4	Books A Million	+44 (0)113-4960227	5	7	11	18	+44	113	4960227
5	Maltese Books	+356 (0)2138-3393	6	8	13	17	+356	2138	3393

- 10 Hide columns C:F.

Select columns C:F, right click the mouse and then click *Hide* on the shortcut menu.

- 11 Save your work as *Phone Book-2*.