Combining Text and Calculations in a Cell

It is possible to create statements or questions in a single cell which contain a dynamic element. This dynamic element could be a calculation based on other cell values, a random number, a conditional logic statement, or a combination of these.

This technique is very useful when combined with random numbers in the creation of 'worksheet generators'.

For example, consider the question: Find the area of the rectangle which measures 7m by 8m. Where the dimensions are produced using two random numbers.

To create this in a single cell you would enter the question as follows:

="Find the area of the rectangle which measures "&int(rand()*10+1)&"m by "&int(rand()*10+1)&"m."

Explanation

- In Excel, all formulae must be preceded by an equals sign.   **=** …..

- Formulae/expressions are entered using standard Excel functions.

- In a formula, text must be entered between speech marks.   **"**Find the area …. **"**

- Text and formulae must be separated by an ampersand.   *"text"**&***expression**&**"text"*

In this example the expression int(rand()*10+1) is used to generate a random integer between 1 and 10. For an explanation of random numbers in Excel see the [Rand Function](#) help sheet.

Part of an Excel worksheet has been inserted below to demonstrate this example.
To see this in action, double click the table below to activate Excel and press the F9 key to alter the dimensions given in the question.

Find the area of the rectangle which measures 9m by 3m.

This technique has been used to create the Excel file [Mental Questions – Level E](#) which creates sets of 5-14 style mental tests for use by the teacher or a pupil at a computer.
(Enable Macros when prompted to run this file)

The screenshot below shows six of the twelve questions on one worksheet. All the values in the questions are created using random numbers. Thus a practically infinite number of worksheets/tests are available.

1. 8 3.9 A piece of wood is 8 metres long.
              A 3.9 metre length is cut off.
              What length of wood is left?   4.1m

2. 50 3500 Divide 3500 by 50.   70

3. 40 30 One box of sweets contains 40 packets.
              How many packets will be in 30 boxes?   1200

4. 50 400 What is 50% of 400?   200

5. 2   What is the volume of a cube of side 2m?   8m³

6. 7 5   The area of a rectangle is 35 cm².
              The length is 7 cm. What is its breadth?   5cm

The values in red are hidden on the actual worksheet and are the random numbers used to create each question. Those in blue are the answers which can be toggled on or off.

The formula for the first sentence in Q1 is as follows:

                    ="A piece of wood is "&C4&" metres long."

The expression C4 inserts the random number (9) created in cell C4 into the text question.

To explore this file further you will need to enable the Formula bar which has been automatically hidden. Go to Tools > Options > View and check the Formula bar box.