

Displaying Numbers

A Read the text opposite. Choose the best answer in each case.

- 1 In Figure 1, number 7 has a short horizontal line and:
 - a a long horizontal line.
 - b a long diagonal line.
 - c a short vertical line.
 - d a long curved line.
- 2 In Figure 1, how many numbers have a curved line?
 - a six
 - b seven
 - c eight
 - d nine
- 3 The numbers in Figure 2:
 - a have no straight lines.
 - b have no curved lines.
 - c have no thick and thin lines.
 - d have no black and white lines.
- 4 How can you make the number 7 on the screen of a calculator?
 - a $BD + DF$
 - b $AB + BD + CD + CE$
 - c $AB + BD + DF$
 - d $AB + BD$

Displaying Numbers

WHEN SCIENTISTS DESIGNED THE first pocket calculator, they needed a simple way to show the Arabic numerals 0 to 9 on the screen. They wanted to use straight horizontal and vertical lines of the same length. Is there a way? Handwrite the numbers (Figure 1) and the answer seems to be *No*. There *are* straight vertical lines in number 1 and number 4, and straight horizontal lines in numbers 2, 4, 5 and 7. But there are other lines too. There are diagonal lines in number 4 and number 7, and curved lines in all the other numbers except number 1. In addition, the lines are different lengths.

However, we can write the numbers in a simpler way. For example, there is a set of numbers used by computer systems in some banks. It is called 'computer readable' (Figure 2). In this system, the computer actually reads the numbers, on cheques for example, so the number must be exactly the same each time. But, look closely at this set of numbers and you will see that the system is still quite complicated. Some of the lines are thick and some are thin. There are two positions for the short horizontal line in the centre (in 3 and 4) and the horizontal line in the centre of 2 is shorter than the centre line in 6.

Then scientists found the answer. Turn on your calculator. Look closely at the screen. There are only seven lines. They are arranged like the number 8 (Figure 3). They are all the same length. However, with these seven lines, we can make all the numbers from 0 to 9. The computer program in the calculator tells the screen which lines to light up to make each number. So the computer instruction for number 1 is BD + DE, and for number 5, it is AB + AC + CD + DF + EE.

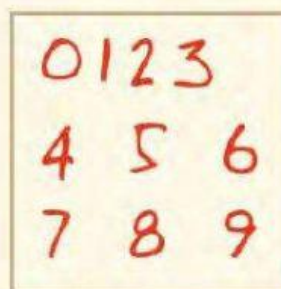


Figure 1



Figure 2



Figure 3

Talking about new topics

We use **There is** and **There are** to introduce a new topic.

We use **It is** and **They are** to give more information about an 'old' topic.

Examples:

There is a set of numbers. **It is** called 'computer readable'.

There are seven straight lines. **They are** arranged like the number 8.

Write one word in each space.

The screen of a pocket calculator has to show all the Arabic _____
0 to 9. It does this with just seven _____. The lines are arranged
like the number 8 and they are all the same _____. There are two
_____ lines on the left and two on the right. There is one _____
line across the top, one across the bottom and one across the centre.

A B C D E
F G H I J K
L M N O P
Q R S T U V
W X Y Z

length - numerals - vertical - horizontal - lines