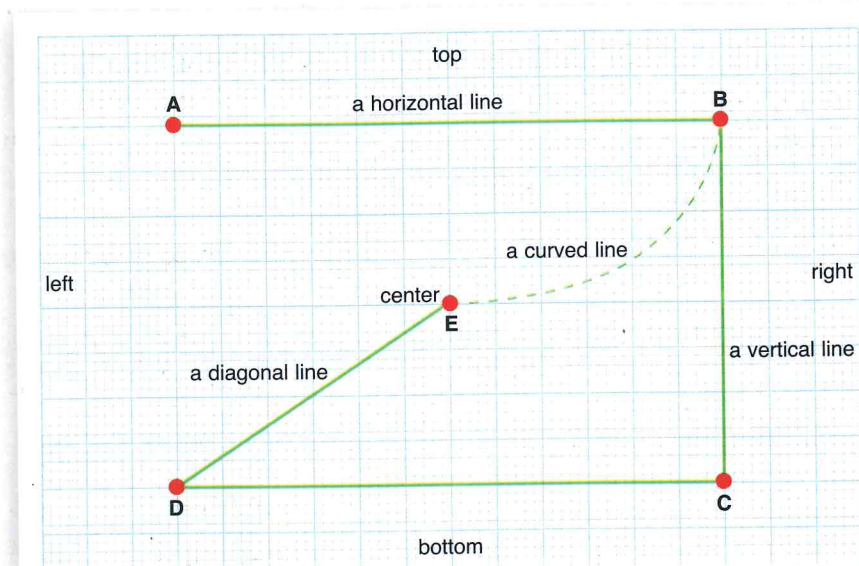




Section 1 Vocabulary

A. Read the text and look at the diagram.



Geometry is a part of mathematics. It is the study of **points** and lines, surfaces and angles, and solid shapes. We look at points and lines in this unit, surfaces and angles in Unit 4 and solid shapes in Unit 5.

A point has **position**. For example, Point A is **top left** of the diagram, and Point C is **bottom right**. Point E is in the **center**. We can also say that Point A is **above** Point D and Point C is **below** Point B.

A **line** has **direction**. For example, line AB goes **left to right**. We call a line like this **horizontal**. Line BC goes **top to bottom**. We call a line like this **vertical**. Line DE goes **bottom left to center**. We call a line like this **diagonal**.

The shortest line between two points is **straight**. All the **solid** lines in the diagram are straight lines. However, we can also join two points with a **curved line**. The **dotted** line EB is curved.

When two straight lines have the same direction, we call them **parallel**. DC is parallel to AB.

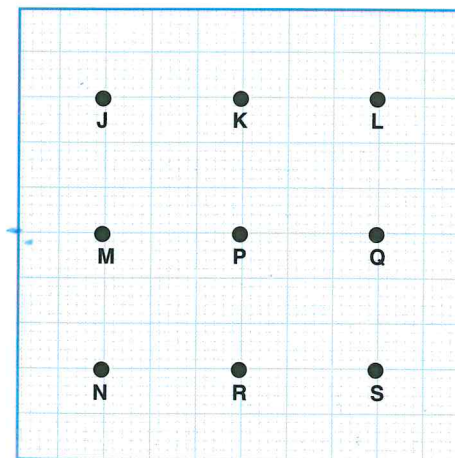
A line also has **length**. It can be long, or short, or **medium-length**.

B. Look at the signs on the right. Complete the instructions for drawing them. Use the words in the box.

above / below / curved / diagonal / horizontal / left / parallel / top / vertical

1. Draw a short _____ line. —
2. Draw a short horizontal line and cross it with a short _____ line. +
3. Draw a short horizontal line and mark one point _____ the center and one point _____ the center. ÷
4. Draw a _____ line from top left to bottom right and cross it with another diagonal line from _____ right to bottom _____. ×
5. Draw a vertical _____ line. (or)
6. Draw a short horizontal line. Draw another short horizontal line above and _____ to it. =

C. Where is each point in the panel? Write the letter next to the correct word or phrase.



1.	top center	K
2.	center left	
3.	center right	
4.	bottom center	
5.	center	
6.	above Q	
7.	below M	
8.	top left	
9.	bottom right	



Section 2 Reading

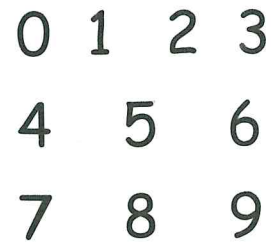


Figure 1

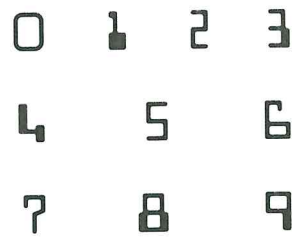


Figure 2

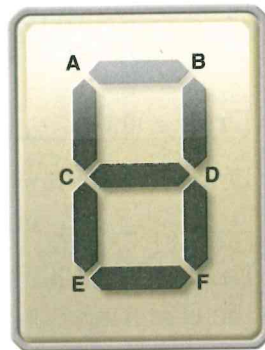


Figure 3

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 number 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 (Figure 2). It is called Computer Readable. In this system, the computer actually reads the numbers, on checks 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 center (in 3 and 4, for example) and this horizontal line can vary in length (see 2 and 5, for example).

The 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 $BD + DF$, and for number 5, it is $AB + AC + CD + DF + EF$.

signature format

A. Choose the best answer in each case.

- In Figure 1, number 7 has a short horizontal line and:
 - a long horizontal line
 - a long diagonal line
 - a short vertical line
 - a long curved line
- In Figure 1, how many numbers have a curved line?
 - six
 - seven
 - eight
 - nine
- The numbers in Figure 2:
 - have no straight lines
 - have no curved or diagonal lines
 - have black and white lines
 - have thick and thin lines
- How can you make the number 7 on the screen of a calculator?
 - $BD + DF$
 - $AB + BD + CD + CE$
 - $AB + BD + DF$
 - $AB + BD$
- The computer instruction $AB + AC + BD + CE + EF + DF$ makes the number:
 - 0
 - 8
 - 6
 - 9

B. Study the following example sentences.

Introducing a topic, then giving more information about it.

There is a set of numbers. **It is** called Computer Readable.
There are seven lines. **They are** arranged like the number 8.
There aren't any curved lines. **They are** all straight.

C. Look at the numbers. Complete each sentence with a suitable word.

- There is _____ diagonal line in the number 7. It _____ from the top right to the bottom left. _____ is also a horizontal line. _____ is at the top. There aren't _____ curved lines.
- There _____ three straight lines in the number 4. _____ is a vertical line. _____ meets a diagonal line _____ the top. There is _____ horizontal line. It meets _____ diagonal line _____ the left and crosses _____ vertical line.



Section 3 Listening

A. Listen and complete the summary of the reading text in Section 2. 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 center.



B. Look at the figures. Listen and choose the best answer in each case.

1. This listening text is about:
 - a. designing cell phones
 - b. displaying letters on calculators
 - c. writing the English alphabet
 - d. displaying numbers on calculators
2. How many capital letters can you make with the pocket calculator system?
 - a. 6
 - b. 16
 - c. 26
 - d. 60
3. The calculator system can't make the other capital letters because there aren't any:
 - a. diagonal lines
 - b. vertical lines
 - c. horizontal lines
 - d. curved lines

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

