



**ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΙΓΑΙΟΥ**

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## **English I**

### **Course Unit 5: Reading and Grammar 3**

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## Reading 3: Cryptology

### Pre-questions

Scan the text below or use what you already know to answer these questions:

- What is cryptography?
- Why did people use secret codes in the past?
- Why do we encrypt messages today?

### Reading comprehension

1. Read a text about cryptography and then try to choose the answer that shows the *main idea* of each paragraph in the questions that follow. Be careful! Many answers can be correct but only ONE shows the main idea.

### Cryptology

1. Dbo zpv sfbe uijt? Ju't b tfdsfu dpef! If you don't understand that, it is because I wrote it in a secret code. It isn't a very complicated code. I just changed every letter for the one following it in the alphabet. So, 'b' is 'c', 'c' is 'd' and so on. Fbtz
2. Secret codes are not a new idea. We know that the Ancient Egyptians and Greeks used them, as did the Arabs of a thousand years ago. They were especially important in war. Commanders didn't want the enemy to capture their messages and understand their plans, so they wrote them in code. Of course, the enemy wanted to understand the messages, **so** they would try to find the code, or 'break' it.

### The Enigma code

3. **As a result**, codes became more and more complicated. One of the most famous is the Enigma code, invented by the Germans and used in the Second World War. People believed that it was impossible to break, because it was always changing. In one message, the letter 'e' could be 'f', but in another message it could be 'z'. **So**, there were millions of possibilities in every coded message.
4. The Polish were the first people who tried to break the code **because** they were concerned about Hitler's rise to power. They found out a lot about how it worked, **but** they couldn't understand it. When Hitler attacked in 1939, the Poles told the British everything that they knew about the code.

### Alan Turing, code-breaker

5. Most of the British code-breakers thought that Enigma was unbreakable. **However**, one man managed to break it. He was a brilliant young mathematician called Alan Turing. He believed that he could break the code with advanced logic and statistics. To do that, he needed to make a machine that could do a very large number of calculations very quickly. **So** he built a machine called the 'Bombe'.

6. It worked and he broke the Enigma code. The British and Americans could read the messages that were sent to and from Hitler's submarines. This greatly helped the allies to liberate Western Europe from Hitler and the Nazis.

### From code-breaking to computer-building

7. Turing continued working with machines and electronics and in 1944 he talked about 'building a brain'. Turing had an idea for an electronic 'universal machine' that could do any logical task. In 1948, while he was working at Manchester University, he created the 'Manchester Baby'. It was Turing's second great invention and the world's first digital computer. When he sent a message from his computer to a telex machine, Alan Turing wrote the first e-mail in history.

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1. What is the main idea of par. 2?
  - a. Secret codes are a modern thing.
  - b. The ancient Egyptians, Greeks, and Arabs invented secret codes.
  - c. Secret codes have been used for many years, especially in wars.
  - d. Germans used secret codes in the Second World War.
2. What is the main idea of par. 3?
  - a. The Enigma code was impossible to break.
  - b. The Enigma code was hard because it was changing a lot.
  - c. Secret codes became more and more complicated.
  - d. Germans invented the Enigma code.
3. What is the main idea of par. 5?
  - a. Alan Turing built a machine to break the Enigma code.
  - b. Alan Turing built a machine called the 'Bombe'.
  - c. Alan Turing built a machine that could do calculations very quickly.
  - d. Alan Turing was a brilliant mathematician.
4. What is the main idea of par. 7?
  - a. Alan Turing created the first digital computer at Manchester University.
  - b. Alan Turing created the first telex machine in 1948.
  - c. Alan Turing created the 'Manchester Baby' in 1944.
  - d. Alan Turing wrote the first e-mail at Manchester University.

### 2. Find words or phrases in the text that mean:

1. something that cannot happen, not possible (par. 3) .....
2. the past form of the modal verb *can* (par. 3) .....
3. chances that something may happen or may be true (par. 3) .....
4. were worried about (par. 4) .....
5. discovered (par. 4) .....

6. the past simple of the verb *know* (par. 4) .....
7. the past simple of the verb *think* (par. 5) .....
8. a person who studies mathematics (par. 5) .....
9. a series of mathematical processes (par. 5) .....
10. to help someone be free (par. 6) .....

**3. Now use the words and phrases of exercise 2 in the following sentences.**

calculations	knew	thought
could	liberate	concerned
find out	mathematician	
impossible	possibility	

1. The news said that there is a ..... of snow tonight.
2. 'Are you feeling all right? I'm a bit ..... about your health.'
3. It's ..... to pass these exams! They're too difficult!
4. Supercomputers are very large computer systems that do a huge number of mathematical .....
5. Emma ..... that the film was really silly.
6. She ..... the answer but she didn't tell him.
7. 'How did you ..... about the party?' 'Tom told me.'
8. When I was younger I ..... stay up all night and not get tired.
9. They said they sent soldiers to ..... the country from the dictator.
10. Pythagoras was a famous ancient .....

**4. There are a number of connectors in the text (highlighted in bold letters). Do you know how to use them? Try to put them in the correct place in the sentences below.**

**as a result, because, but, however, so**

1. My leg started hurting ..... I stopped running.
2. This is one possible solution to the problem. ...., there are others, too.
3. I can't come to the party tonight ..... I have a lot of studying to do.
4. Our company is doing well. ...., we have a lot of profit.
5. She's hard-working ..... she doesn't get good exam results.

## Answers to the exercises

### Exercise 1

1. The correct answer is [c] (Secret codes have been used for many years, especially in wars.) [a] is false because the text says the opposite. [b] is false because the text says that ancient Egyptians, Greeks, and Arabs used, not invented, secret codes. [d] is wrong because it is a detail, but not a main idea.
2. The correct answer is [b] (The Enigma code was hard because it was changing a lot.) [a] is false because the Enigma code was difficult, not impossible, to break. [c] and [d] are details, but not main ideas.
3. The correct answer is [a] (Alan Turing built a machine to break the Enigma code.) [b], [c], and [d] are details, but not main ideas.
4. The correct answer is [a] (Alan Turing created the first digital computer at Manchester University.) [b] is false; Turing did not create a telex machine. [c] is false, because Turing created 'Manchester Baby' in 1948, not 1944. [d] is a detail, but not a main idea.

### Exercise 2

1. impossible
2. could
3. possibilities
4. were concerned about
5. found out
6. knew
7. thought
8. mathematician
9. calculations
10. liberate

### Exercise 3

1. possibility
2. concerned
3. impossible
4. calculations
5. thought
6. knew
7. find out
8. could
9. liberate
10. mathematician

### Exercise 4

1. so

## English 1

2. However
3. because
4. As a result
5. but / however