

# Module 2

## Trademark and Mathematics

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## REFERENCED DOCUMENTS

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| 1  | 2020-1-UK01-KA201-078934 | IPinSTEAM Proposal |
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## APPLICABLE DOCUMENTS

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# 1. Trademark and mathematics

## 1.1 Learning Outcomes

In this module, we are going to learn what a trademark is and what can be its uses related to mathematics, statistics, and big data. However, before going into the concepts mentioned above, we must know what a trademark is, as well as other fundamental aspects related to this concept.

After completing this module, you will be able to:

- To know the basic principles of intellectual property.
- Discover how trademarks work and their impact on everyday life.
- Learning about the relationship between mathematics and trademarks

Estimated seat time: X hours

## 1.2 Main Content

### 1.2.1 Terms and Definitions

A trademark determines the identity of a product or service, and its use is exclusive. This means that the rights and the use or reproduction of this trademark can only be used by its owner. The sign of a trademark can be a word or a combination of words, an image or a design, three-dimensional shapes, sounds and in some countries, smells, textures and any other that meets the requirements of distinctiveness and the possibility of being represented in writing or graphically.

The concept of a trademark has a long history and a great historical value. It was in the year 1266 when, under the reign of King Henry III, bakers began to put small marks on bread, to be able to differentiate which bread was from that region or from that baker. With something as simple as bread, very primitive logos began to be created that are, without a doubt, the prelude to our current trademarks.

One of the most common ways of registering trademarks is through the European Union Intellectual Property Office, also known as EUIPO. The headquarters of this office is in the city of Alicante.

The main function of a trademark is undoubtedly to identify the origin of that product or service. This use of trademarks normally has exclusive rights, as explained above. Another thing we must also be clear about is that this is not only used by companies, but also by other types of organisations, such as NGOs, non-commercial organisations and even religions. In this way, it is a legal way to protect their identity.

In order to provide more order within trademarks, they fall under an organisation called the Nice classification. The Nice Classification is based on a multilateral treaty administered by WIPO, called the Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks, concluded in 1957. This Classification is commonly known as the Nice Classification. The Nice Agreement is open to States party to the Paris Convention for the Protection of Industrial Property. This classification is necessary in order to register a trademark in the correct

category. This classification is updated every 5 years, with the next update due in 2022, unless prevented by the Covid-19 crisis.

The Nice Classification consists of a list of classes, accompanied by explanatory notes and an alphabetical list of goods and an alphabetical list of services, indicating the class to which each of the goods or services belongs. The class heading describes in very general terms the nature of the goods or services contained in each of the 34 classes of goods and 11 classes of services. They are accompanied, where appropriate, by explanatory notes describing in more detail the type of goods or services included in the relevant class. The alphabetical list is a list of goods and services in alphabetical order. It contains about 10,000 headings for goods and 1,000 headings for services.

As far as mathematics as we know it today is concerned, we cannot find any category for it. It is not possible to register a theorem, a sum, or an algorithm as a trademark. However, we must be aware that mathematics is closely related to develop most products that can be registered at the European Union Intellectual Property Office.

As for the duration of the rights of a registered trademark, we know that they are usually between 10 and 15 years, depending on the legislation to which it is subject. These rights can be renewed, but if this renewal is not carried out, the rights to that design or product would be lost, therefore, the trademark would no longer be protected. This means that anyone can use it or even reproduce it in another way.

Another of the most striking aspects of trademarks are the symbols that are used to accompany them:

- <sup>TM</sup>: Trademark symbol, an unregistered trademark, used to promote or brand goods.
- <sup>SM</sup>: SuperScript, an unregistered service or mark, promote or brand services.
- ®: Registered trademark.

As you have seen, trademarks are part of our everyday life, as are their symbols. We will now look at the importance of mathematics in this area, as well as that of statistics and big data.

### 1.2.2 Theory behind the IP implementation

In the field of mathematics, it is not possible to implement intellectual property because it is not covered by intellectual property law. However, there are other fronts open in places beyond the European Union that could be interesting if at some point the possibility of being able to trademark mathematics, statistics or big data at the European Union Intellectual Property Office were to be contemplated.

As it is impossible, at least for the moment, to relate mathematics and trademarks in the European Union, let's take as an example other case, specifically in the United States, where their legislation does allow them to do some things related to mathematics. The U.S. Patent and Trademark Office states that limits must be established in certain commercial areas at the legal level concerning trademarks.

However, all attempts to create mathematics trademarks beyond our borders have been unsuccessful. To illustrate all this, we will take as a reference an article entitled: "*Trademark of common mathematical symbol creates controversy*" which is published in the Palendis Law Firm website.

Normally, a trademark is used to protect names, symbols, logos and even brand names. And one such registration was that of a man from the state of New York, whose identity we will keep hidden as Mr. X. This person is an artist based in Brooklyn, New York. In the year 2014, he managed to register one of his many designs, to then be able to sell T-shirts and other types of products with this logo, to call it in some way. The design that this person managed to register as a trademark, was the symbol of the number pi followed by a point.

In this case, anyone knows what both the number pi and the letter itself mean in the Greek alphabet. It is not necessary to be a mathematician, nor to have very advanced studies in this branch of science to know that it is a number developed not only by one, but many mathematicians over many years. In addition, this long number has always carried a lot of mystery behind it. At the legislative level, there have been many attempts to simplify this complex sequence of modules, although these attempts, too, have been unsuccessful.

This action was the subject of much controversy about the use that should be made of trademarks. This design was registered in category 25, which deals with covering clothing, footwear and headgear.

Mr X, in the wake of the controversy, sent a cease-and-desist letter to the website that was distributing the products with the design he had registered as a trademark. This website, by the way, already had enough legal problems unrelated to all this. Therefore, the cease-and-desist letter requested the following:

- They asked for an inventory of all products infringing any kind of trademark-related legislation and the specific case of the Pi number.
- Inventory of all products bearing the number Pi, as well as anything else related to this Greek letter.
- Inventory of everything related to the Pi number, both designs and all products for sale that they had on their website involving third parties.

Faced with such an offensive, the website first disabled access to all products and followed up with a cease-and-desist letter. However, a couple of days later, the website re-established access to these products, as it received many complaints about this controversy. On the other hand, Mr X received death threats for having registered the pi number design, but despite this, he preferred to continue protecting his brand.

Now, knowing this real case of an attempt to trademark a mathematical element, in this case a symbol, poses more problems than benefits. Therefore, by way of conclusion and final reflection on this section, we must reflect on the clear boundaries between mathematics and intellectual property. We cannot always register anything as a trademark; however, it is essential to know that most products that can be registered as trademarks need mathematics to be created. Mathematics may not be registrable as a trademark, but it is part of the rest of the designs that do form part of trademarks.

### 1.2.3 Practical examples

As we have seen throughout this module, the implementation of these two disciplines is more complicated than it seems, which is why, for the practical examples section, a survey has been carried

out with mathematicians from several Spanish universities so that, as far as possible, they can provide a more specific vision of this subject.

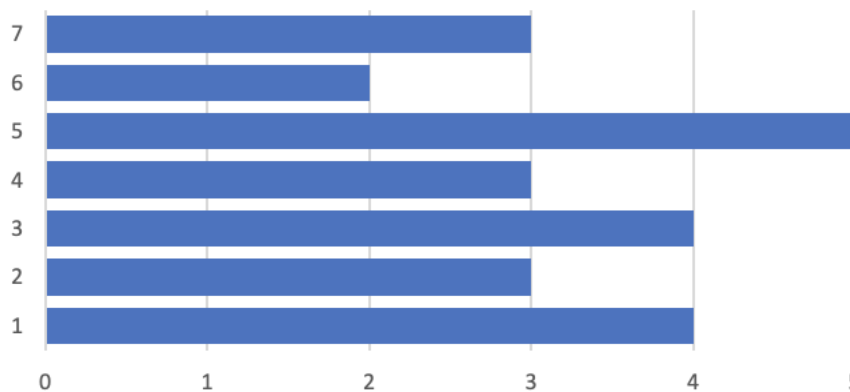
In the first question, by way of introduction, respondents were asked if they knew what trademark was. The vast majority did know what it is, but another part, about a third, had some notion of what it is but would not be able to explain what it is.

**Yes** represents the majority of responses from "Do you know what a trademark is?".



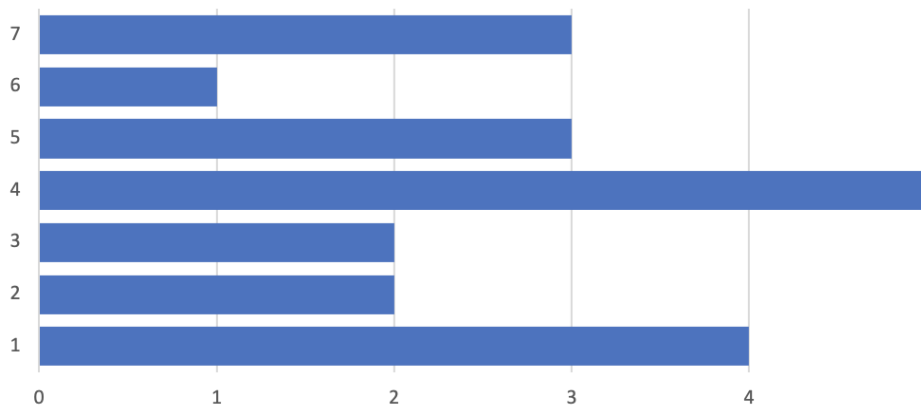
Then, the 7 respondents from the trademark part rated from 1 to 5 this question about protecting study methods totally or partially related to mathematics.

"1 to 5: Do you consider it appropriate to protect study methods in the field of mathematics (textbooks, specialised journals, popular articles) by means of a trademark?"



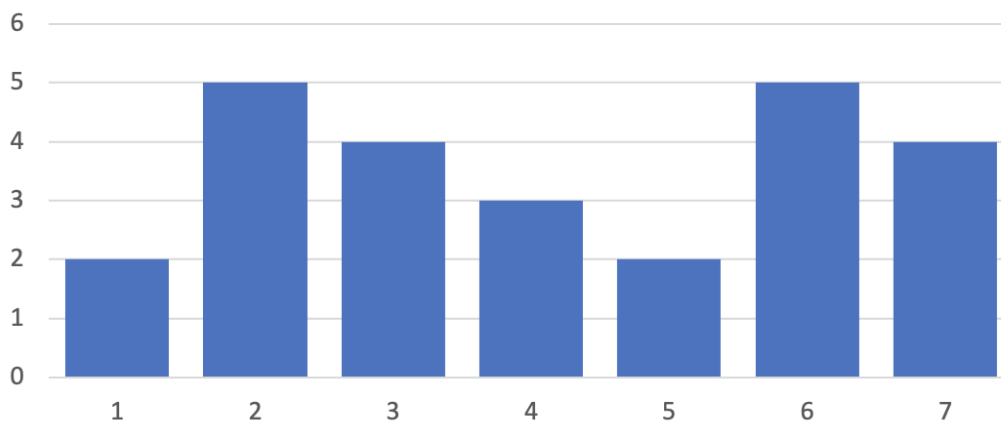
Then, on the same scale of 1 to 5, they gave their opinion on their position concerning the protection of trademarks in the 1957 Nice Agreement.

"Mathematical procedures are not eligible for trademark protection under the Nice Agreement of 1957. However, they are part of the process of creating almost anything that can be registered as a trademark. How do you agree with this statement?"



In contrast to the previous question, we asked the following question: Do you believe, on the contrary, that these procedures should be in the public domain as they are today? The answers were ordered in the same way as above, from 1 to 5.

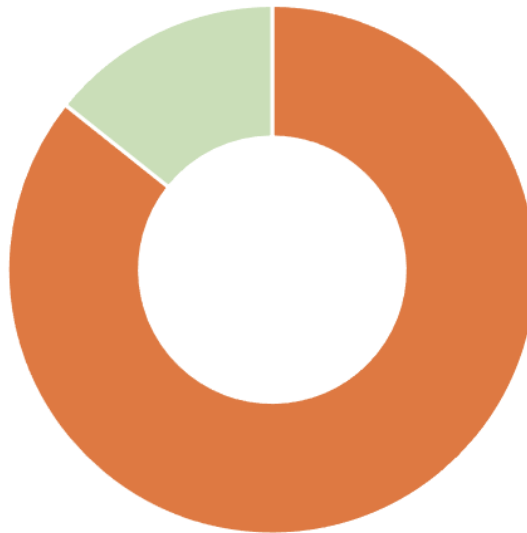
"Do you believe, on the contrary, that these procedures should be in the public domain as they are today?"





Finally, on the last question there is a large majority in favor of a no vote. However, the only reasoned answer is yes, which we will analyse in the next section: *Case studies*.

**No** represents: "Do you think there should be some kind of trademark protection for some kind of mathematical procedure? If yes, which ones would you propose?".



### 1.2.4 Case studies

This module was carried out among several mathematics graduates from the University of Valencia, the Autonomous University of Madrid, and the University of Valladolid. In the following, we will explain in more detail the above statistics on the relationship between mathematics and trademark.

Firstly, the intention of the first question is simply to find out what level of knowledge respondents have about trademarks. It seems that most of them know what trademark is, which makes it much easier to understand the rest of the survey. However, there are two people who, although they do know what a trademark is, would not be able to explain it in their own words. This means that even if they know the term or may even have some notion of what it is, it is not a concept they have mastered. This indicates that as the two disciplines are so different, there is still a long way to go before both can be implemented.

Subsequently, the questions have started to become somewhat more specific, but we can say that in general, there is a clear tendency to start a simple implementation of intellectual property in mathematics. More specifically, by applying it to treatises, books, or articles completely related to the subject. There is only one respondent who does not particularly agree with this statement, preferring a trademark model like the current one, in other words, non-existent.

The percentage of agreement on Classification in the Nice Agreements is much more mixed. Some of them consider that although mathematics forms part of most elements that can be registered as a trademark, it should be paid for or at least covered in some way in the trademark legislation. However, there is another group of respondents who believe just the opposite. In addition, there is also a percentage that is neither in favour nor against, mainly due to a lack of information on this specific issue. It seems that the Nice Agreement is a key element to be reviewed with a view to the future implementation of mathematics in the trademark.

On protection as a registered reaper of mathematical procedures, there is a clear negative. However, one person considers that there should be, especially in the field of cryptography. This person considers that systems such as AES, or DES, should have legislation in this respect, although as it is a cryptosystem, it should not be revealed what is behind it.

### 1.3 Knowledge Assessment

Quiz-like assessment based on the main content. Please mark the correct answer with bold when required. Include 10 questions for your module. Increase gradually the level of difficulty.

Question 1: The use of a trademark is exclusive to the registrant.

**[True]**

[False]

Question 2: Where must trademarks be registered to be valid in the European Union?

**[At the EUIPO]**

[At the Nice Tribunal]

[They do not need to be registered in any organisation.]

Question 3: A trademark is:

**[A trademark determines the identity of a product or service]**

[A trademark is a way to patent some objects]

[A trademark determines the utilities of a product or service]

Question 4: Which of these products are NOT eligible for trademark registration?

**[Pi Number]**

**[The Google algorithm]**

[A brand like Starbucks]

[Religious elements]

Question 5: Can the number pi be registered as a trademark?

**[No, because it belongs to mathematics]**

[Absolutely]

[If it could be done in the US, it could be done in the EU.]

**[Right now, the legislation does not allow it.]**

Question 6: SuperScript is...

[A trademark]

[A registered mark]

**[an unregistered service or mark]  
[a service to promote or brand services]**

Question 7 : Can mathematics be registered as a trademark, depending on which category it is done in?

Yes, you can register in several categories

You can only register in the category "mathematics".

**In the United States you can do this, but there are legal problems.**

**In the European Union, mathematics cannot be registered as a trademark under any circumstances.**

Question 8 (matching): Match the terms with their definitions.

™: Trademark symbol, an unregistered trademark, used to promote or brand goods.

**Trademark:** determines the identity of a product or service

™: SuperScript, an unregistered service or mark, promote or brand services.

®: Registered trademark.

Question 9 (matching): Match the concepts with their explanations.

Identity: represents the origin, quality and the goodwill attached to a business

Big data: extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions.

EUIPO: responsible for managing the EU trademark and the registered Community design

Nice Agreement: is a system of classifying goods and services for the purpose of registering trademarks

## 1.4 Skills Assessment

In terms of the actual application of trademark and mathematics, together with the relationship with intellectual property, we must consider the multiple factors that affect these disciplines, in addition to all the concepts we have learnt throughout this module.

For a long time, there has been a clear trend against protecting mathematical procedures, as there is no known sense of ownership as such. Within this, there are many ideological, sociological, and moral currents that determine opinions about this event.

Therefore, we must ask ourselves certain questions to have a more realistic and analytical view of this issue. To register something as a trademark implies a sense of ownership that is not current in the mathematical community, so should we go into a field that is not ours, when we also know that the rest of the cases beyond our borders have been a failure?

From this last question, we can follow different strands, two of which may be the most polarised. Firstly, we can learn from the mistakes made in other legal systems and be smart enough not to repeat them, as well as adapt the customs of the mathematical community to the current legislation. On the other hand, we can lean towards the claim that if we see that attempts at legislation have been in vain, it is not worth trying, as there are enough examples to know that perhaps it is not the best option.

Through critical thinking, accompanied by the knowledge present in this module, we can reflect on what might suit us best, and thus conclude closer to the current scenario.

## 2. References

<https://tmdb.eu/trademark/US-88255342-maths.html>

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