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# AS/A Level Mathematics and Further Mathematics

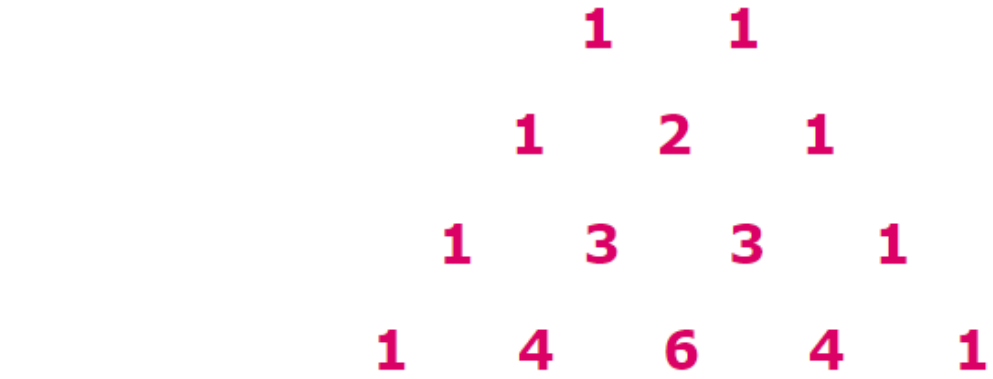
# What is AS level Mathematics?

$$(x+1)^1 = 1x + 1$$

$$(x+1)^2 = 1x^2 + 2x + 1$$

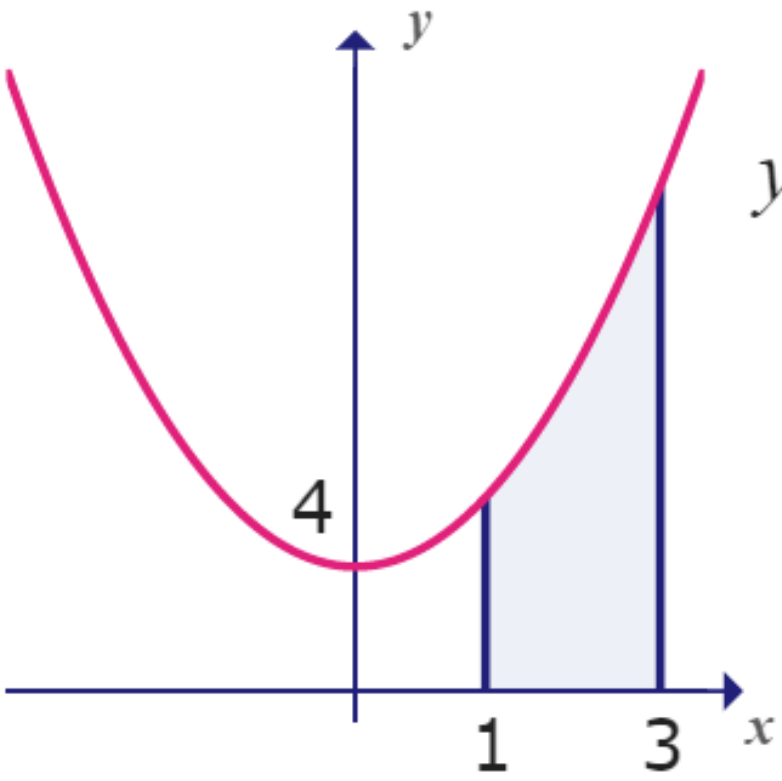
$$(x+1)^3 = 1x^3 + 3x^2 + 3x + 1$$

$$(x+1)^4 = 1x^4 + 4x^3 + 6x^2 + 4x + 1$$




**Pure Mathematics**

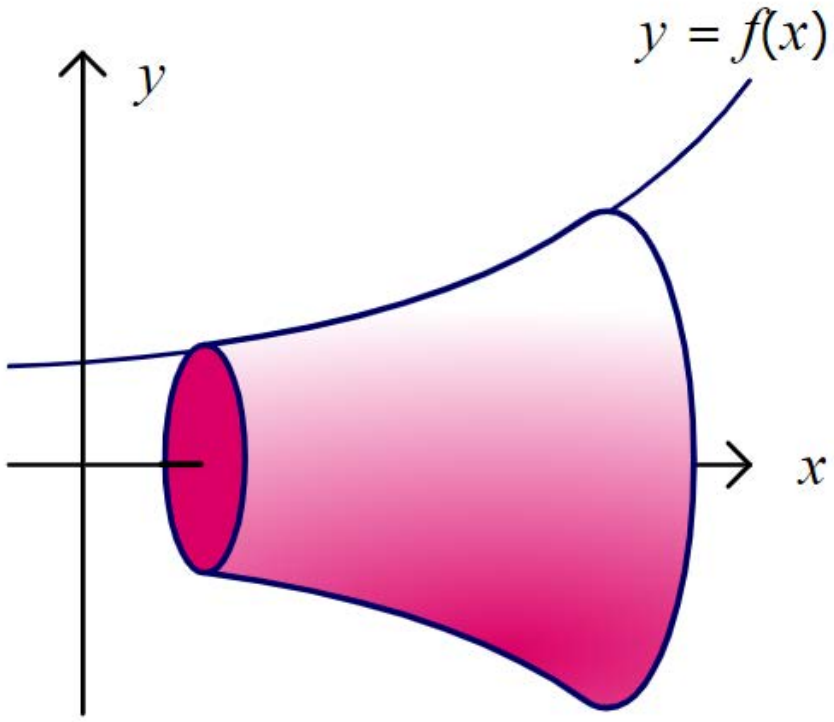
# What is A level Mathematics?




$y = x^2 + 4$

**Pure Mathematics**

# What is A level Mathematics?




**Further Mathematics - Core Pure Mathematics**

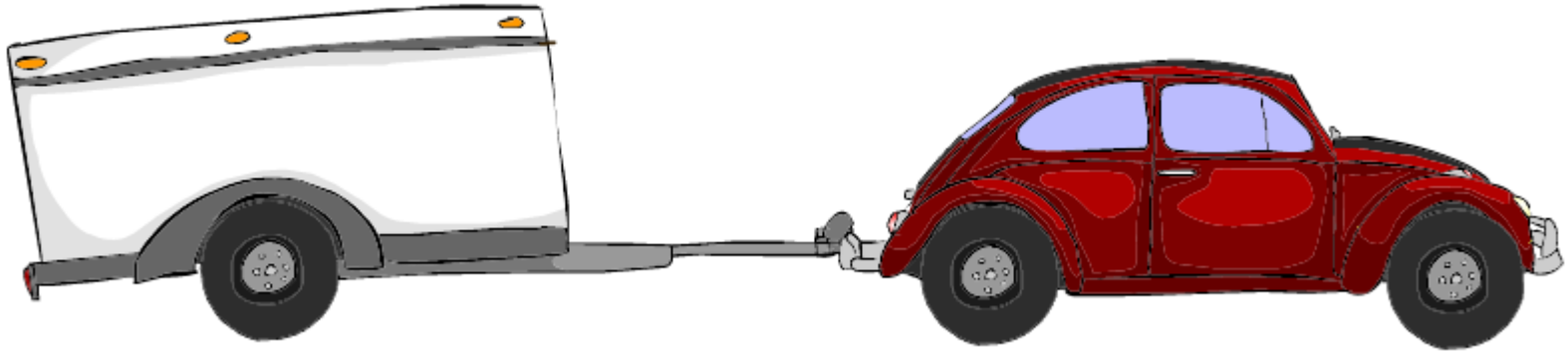
# What is AS/A level Mathematics?

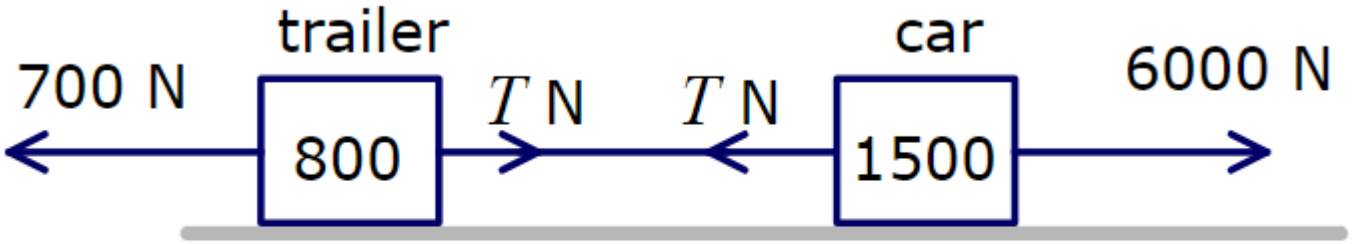
Tom has trouble remembering his pin number.
He knows it contains the digits 1, 3, 4 and 6
but he can't remember the order.

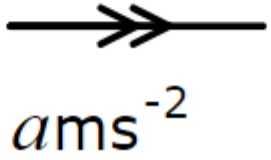
How many different orders are there?


**Statistics**

# What is AS/A level Mathematics?






**Mechanics**

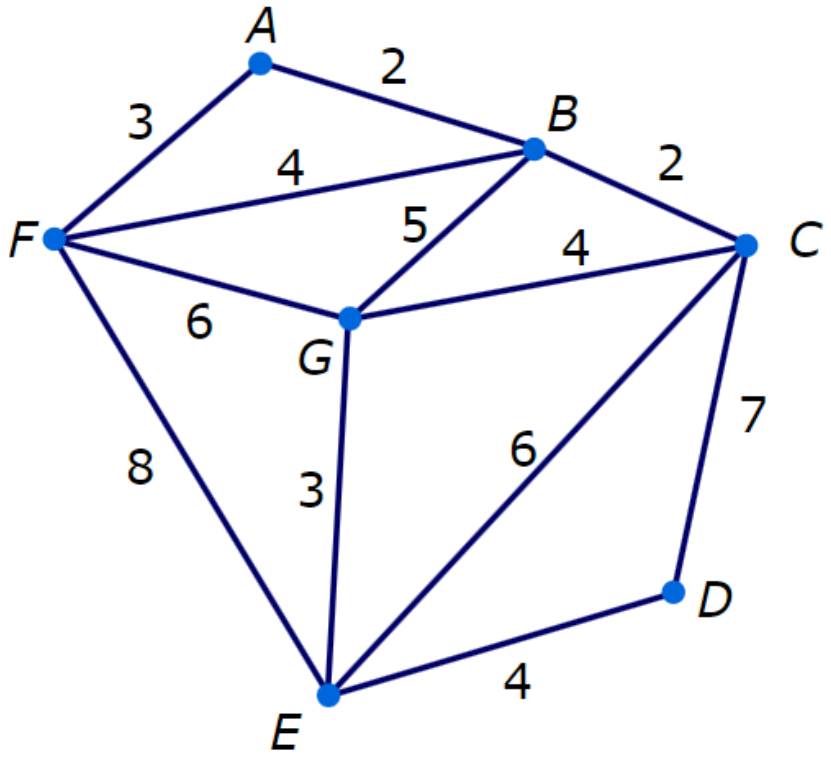
# What is A level Further Mathematics?

The graph shows the roads in a village, with lengths in hundreds of metres.

A postman starts and finishes his round at *A*.

He needs to walk along every road at least once to deliver the post.

How far will he have to walk to do this?




**Further Mathematics – Decision Maths**

# AS/A level Mathematics course structure

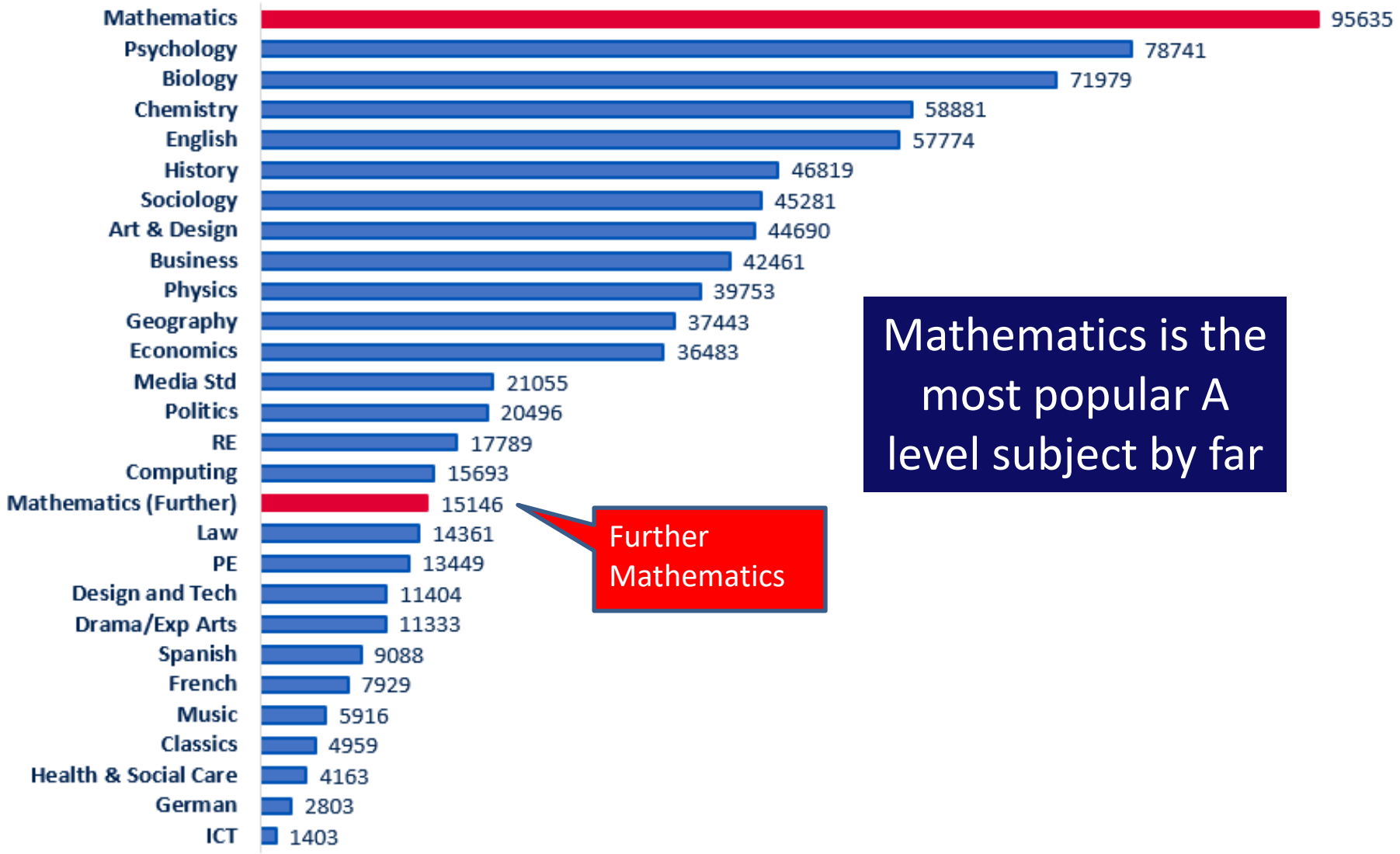
All of the content in the AS/A level Mathematics qualification is compulsory and is the same for all examination boards.

# AS/A level Further Mathematics course structure

Further Mathematics is taken **in addition** to A level Mathematics

| Pure Mathematics | Additional Pure, Statistics, Mechanics or Decision Mathematics |
|---|---|

# A level entries by subject



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# *Many subjects use maths*

| | |
|---|---|
| Geography | (no specific percentage but geographical skills include quantitative and qualitative skills equally) |
| Economics | (at least 20%) |
| Biology | (at least 10%) |
| Business | (at least 10%) |
| Psychology | (at least 10%) |
| PE | (at least 5%) |
| Sociology | (no specific percentage but you will be analysing data) |

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# Career opportunities

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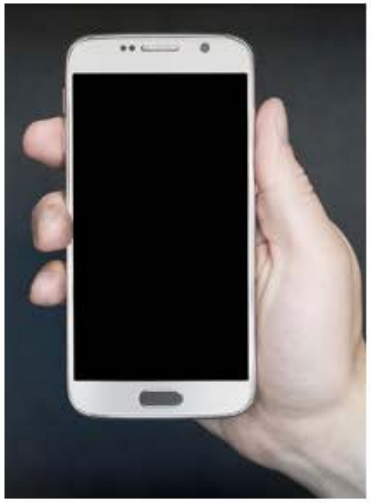
# Career opportunities

## Applications of mathematics in technology:

- Medical
- Games Design
- Internet Security
- Financial Cryptography
- Programming
- Communications



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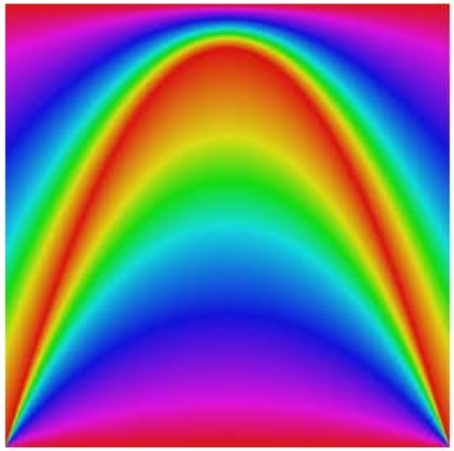
# Career opportunities

## On-going applications in engineering, such as:

- Aircraft Modelling
- Fluid Flows
- Acoustic
- Software Development
- Electronics
- Civil Engineering.



# Career opportunities

## New scientific processes such as:

- Modelling populations
- Modelling diseases
- Quantum Physics
- Astronomy
- Forensics
- DNA sequencing

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# Career opportunities

## Applications relating to human behaviours and interactions:

- Data Science
- Psychology
- Law
- Economics
- Climate Change
- Environmental Modelling
- Political Science
- International Development


# FPSS entry requirements

## AS/A level Mathematics

- At least **grade 6** in GCSE Maths.

## AS/A level Further Mathematics

- At least **grade 7** in GCSE Maths.
- Must be studying AS/A level Mathematics.

# *Why Maths at FPSS?*

- Highly skilled subject specialists.
- Maths workshop after school.
- 1-1 tutorials with teachers as required.
- KS5 support tutor.
- Online subscriptions to ActiveLearn, Integral, MyMaths.
- UKMT maths challenges.
- Opportunities to become a Maths ambassador.
- Mentoring programme for younger students.

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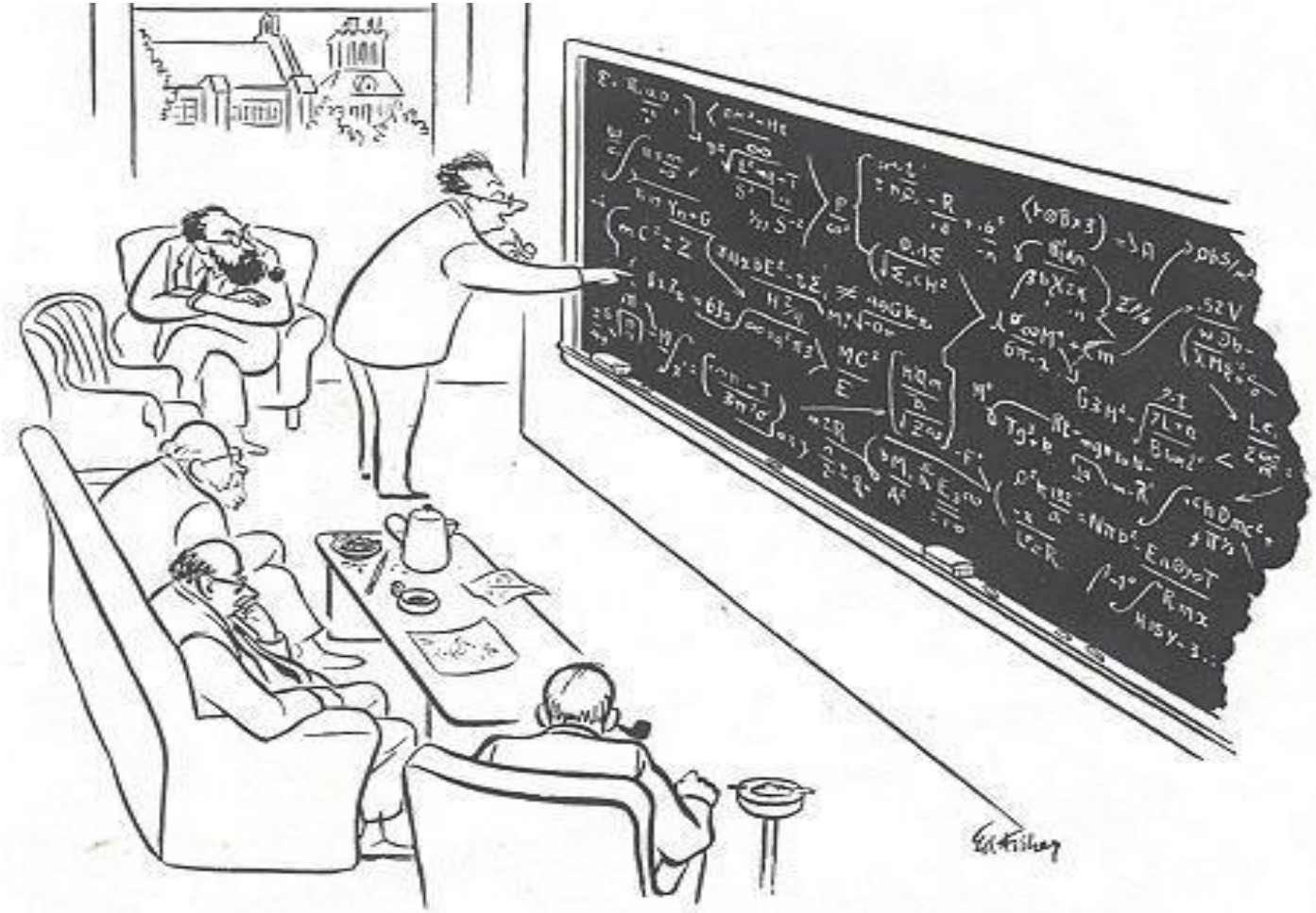
# Mathematics



"Say, I think I see where we went off. Isn't eight times seven fifty-six?"