PHILOSOPHY OF MATHEMATICS
WINTER 2010

CLASS INFORMATION

INSTRUCTOR
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INSTRUCTORS OFFICE HOURS:
• Wednesday 12.00 - 1.00
• You may also make an appointment.
What is the Philosophy Mathematics?

What is the ontological status of mathematical entities?
What does it mean to talk about mathematical objects?
What is the relation between logic and mathematics?
What are the objectives of mathematics?
How does mathematics relate to the real world?
What are the human traits behind mathematics?
What is mathematical beauty?
What is the source and nature of mathematical truth?
Is mathematics a universal language?

How did it all start?

• With the Greeks: Plato - math is the proper training for understanding the world we live in.

"DO YOU THINK IT IS?"
RATIONALISM

- Plato (to a certain extent) followed (to a larger extent) by Descartes and Leibniz, were RATIONALISTS

Opposed to RATIONALISM is EMPIRICISM.

The view sense-data are the source of knowledge.

Can be traced back to Aristotle.
Primarily a British philosophical movement developed by Locke, Berkeley, Hume, and Mill.
Americans Bas van Fraassen and W.V.O. Quine.
PROOF

But surely mathematics is based on PROOF not observation?

A PRIORI

Knowledge prior to or independent of experience.
Necessary truths

Does 7+5=12 necessarily?

What is the connection between mathematics and philosophy?

1. Early attempts to understand the world around us (e.g. the Greeks).
2. Logic is central to all branches of philosophy. (correct reasoning).
3. Epistemology and natural science.
NEXT WEEK

- Read pp3–6. (Section 1.1)
- Read pp21–24 (Section 2.1)

We will return to chapters 1 and 2 later in the course.

- Read chapter 3.