What is artificial intelligence?
- Being like a human,
- Being able to work out the right thing to do, "rationality"
- What we don't (yet?) know how to make an algorithm for

The Turing test. Requires
- Natural language processing
- Knowledge representation
- Automated reasoning
- Machine learning (?)

So-called "total" Turing test
- Computer vision
- Robotics

but artificial flight, they "proved" that it is impossible.

Thinking like a human, four approaches
- Introspection
- Psychological experiments
- Neurological experiments
    - Leading to neural networks
    - McCulloch-Pitts perceptron
    - Training
    - Back propagation
- Brain imaging

Marvin Minsky, stolen from wikipedia:

Minsky's book *Perceptrons* (written with Seymour Papert) attacked the work of Frank Rosenblatt, and became the foundational work in the analysis of artificial neural networks. The book is the center of a controversy in the history of AI, as some claim it to have had great importance in discouraging research of neural networks in the 1970s, and contributing to the so-called "AI winter".[27] He also founded several other AI models. His paper *A framework for representing knowledge*[28] created a new paradigm in knowledge representation. While his *Perceptrons* is now more a historical than practical book, the theory of frames is in wide use.[29] Minsky also wrote of the possibility that extraterrestrial life may think like humans, permitting communication.[30]

Rationality
- Intelligent agents - robots, programs, what?
- The laws of thought
    - Aristotle's syllogisms, maybe 350 BC
        - "All men are mortal, Socrates is a man, therefore ..."
    - George Boole
    - Propositional logic
- Planning and following strategies knowing objective
    - Do we always know the objective? e.g. self-driving cars
    - Block world

Maybe philosophy:

- Can formal rules be used to draw proper conclusions?
- What are the formal rules?
    - Principia Mathematica
    - What can be computed at all?
        - Gödel's incompleteness theorem
        - Turing computability
        - Tractability - over-promising
- How does the mind arise from the physical brain?
- Where does knowledge come from?

Knowledge base
- How does the world work? What effects do actions have?
- Encyclopædias
- Semantic networks

Programming
- Lisp
- Prolog
- Python

Expert systems
- Fundamental rules of logic - work out answers from first principles
- Dendral - mass spectrometer
- Mycin - from experts
    - Knowledge elicitation
- DEC R1

Probability
- Uncertainty
- Bayesian networks
- Fuzzy sets etc

Linguistics
- Rules
    - "No such thing as syntax"
- Huge differences in the way languages work
- Ambiguity - plant - stick
- Knowledge of the world

Trouble
- Surveillance
- Biassed decision making
- Unemployment
- Safety critical - cars - autonomous weapons
- Superintelligence
- Gorillas - we have a common ancestor