Relevant

Real Life

Fun

Active

Challenging

Hands on

Rewarding

Welcome Back!
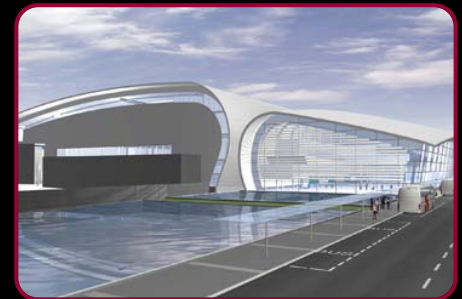
Strand 2

Project Maths
Tionscadal Mata
Development Team

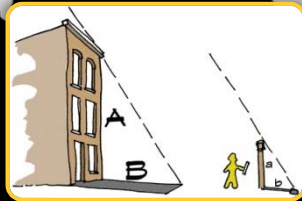Pádraic Kavanagh

Rationale for Teaching Geometry & Trigonometry
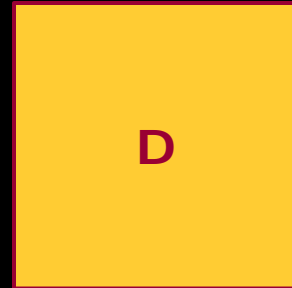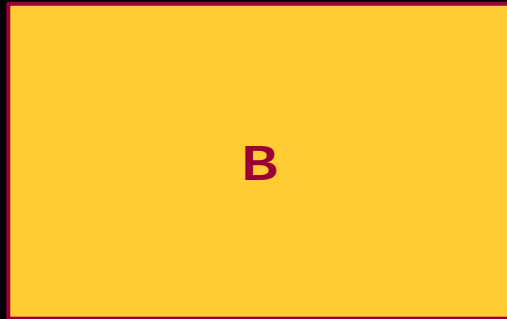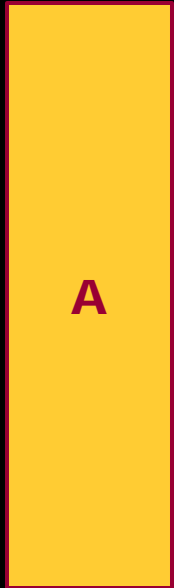
Strand 2

Geometry and Trigonometry

- ❏ Euclidean (Synthetic & Transformation) Geometry
  Euclid circa 300 B.C.

- ❏ Trigonometric Geometry
  Egyptians and Babylonians 50 B.C.

- ❏ Cartesian Geometry (Coordinate)
  Descartes – 17th century

"Arising out of practical activity and man's need to describe his surroundings, geometric forms were slowly conceptualised."

Fehr - 1973

Which is more pleasing to the eye?

A

B

C

D

E

Which is more pleasing to the eye?
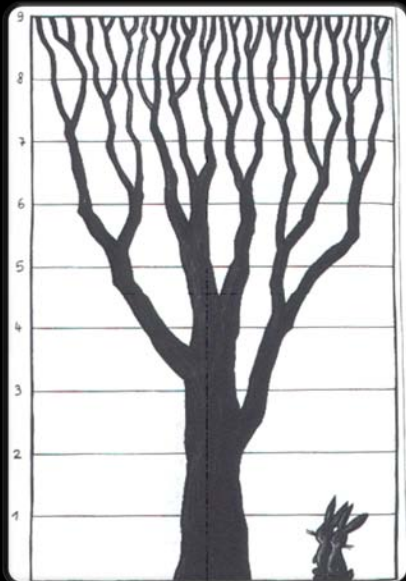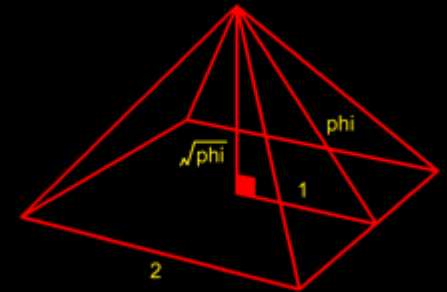
The Golden Ratio

- **What is Phi?**

- Phi (Φ=1.618033988749895…), pronounced 'fi', is simply an irrational number like π

- Unlike π, which is a transcendental number, Φ is the solution to a quadratic equation

- 1,1,2,3,5,8,13,21,34………….
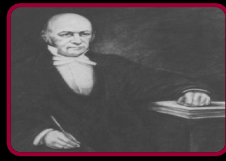 1,2,1.5,1.66,1.6,1.61………..

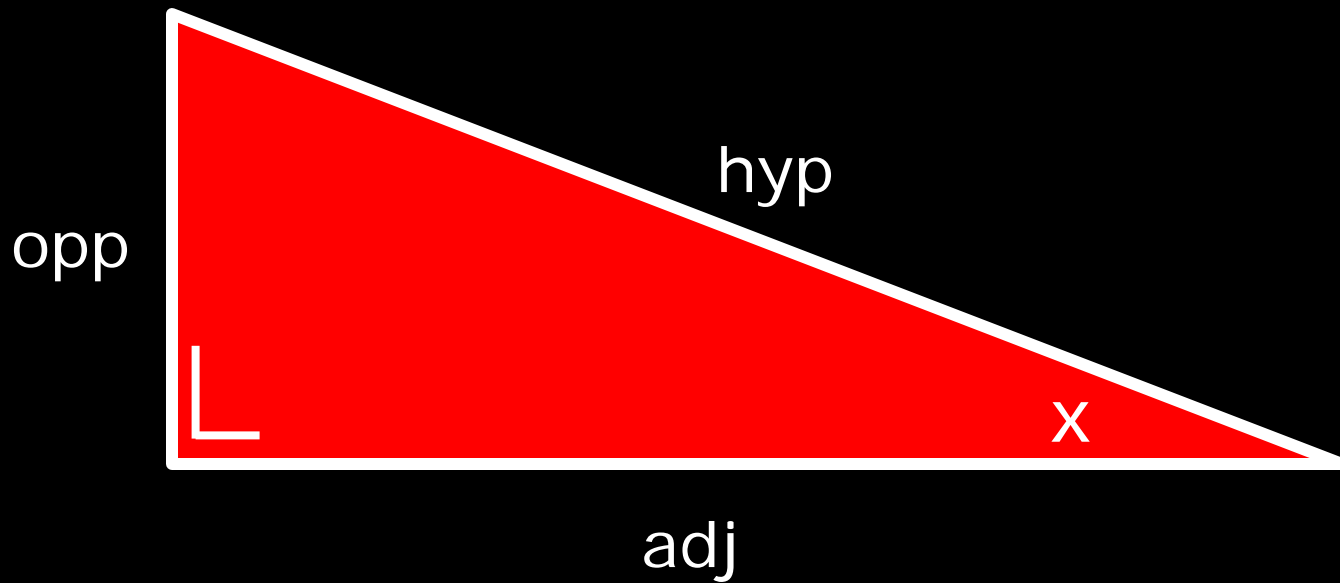# Examples

Why study Euclid?
(Towards a rationale)

1. Logic-Argument was at the core of traditional deductive reasoning, where facts are determined by combining existing statements, in contrast to inductive reasoning where facts are determined by repeated observations

2. Underpins other areas of geometry

3. Real world

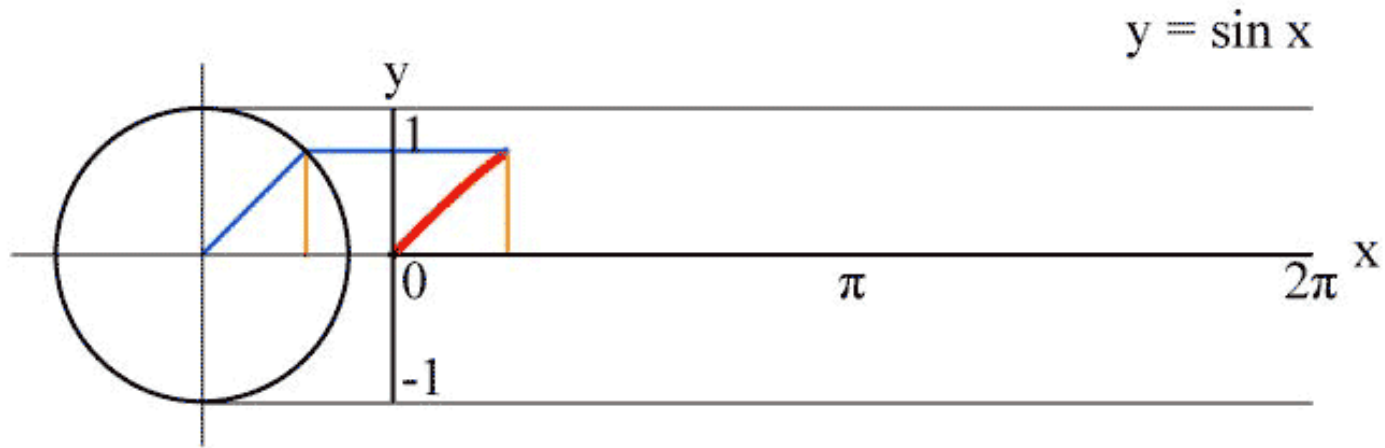4. Van Hiele Theory

5. Interesting in itself

❑ What is sin x ?

The Graph of y = sin x

y = sin x

Descartes
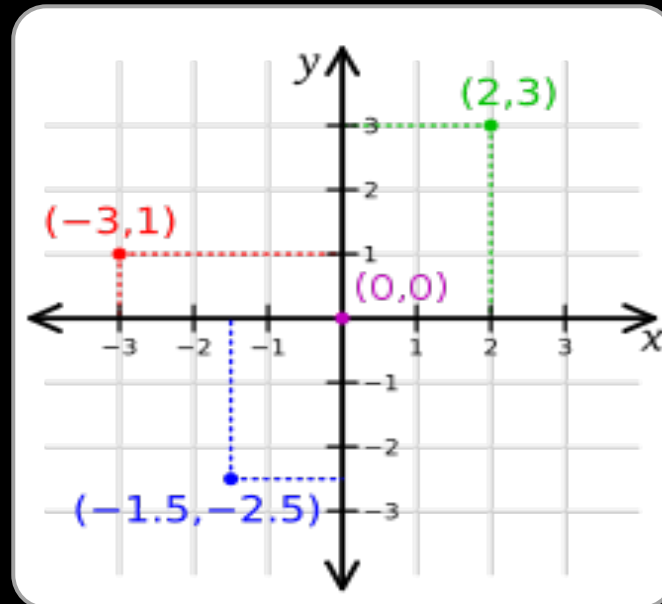
- Philosopher – " I think therefore I am"

- Probability – Gambling

- Mathematician – "x and y – axis"

Co-ordinate Geometry

Descartes Analytical Geometry-the use of an axis

Axis developed leading to:

- functional analysis

- development of equations

- models representing geometrical shapes

- models representing algebraic problems

- multiple linear regression where variables are regressed out e.g. causes of heart disease