

Calculus Overview

①



• What is calculus?

- Latin: "small stones used for counting" } -wiki
- Study of infinitesimal changes
- Study of functions - to calculate.
- Beginning of "analysis".

• History / Developments

- Greek: vague idea

eg: Archimede's proof for area of a disc.

- More serious developments:

Sir. Issac Newton (1642 - 1727)

- Methods of Fluxions

G. W. Leibniz

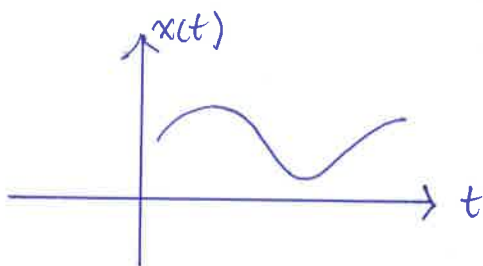
- Formal introduction of infinitesimals

} Rivalry!

• Motivating Questions. Q,

(rate of change)

1. How fast is an object moving, when we have full knowledge of its position?

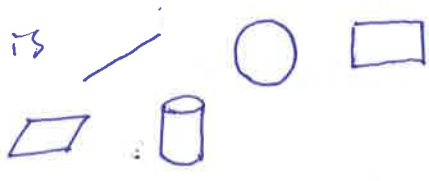


differential calculus

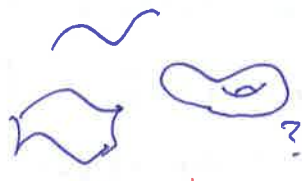
- Simple to answer if the motion is uniform

2. What is the length/area/volume of a "curvey" stuff?

easy to answer if the stuff is



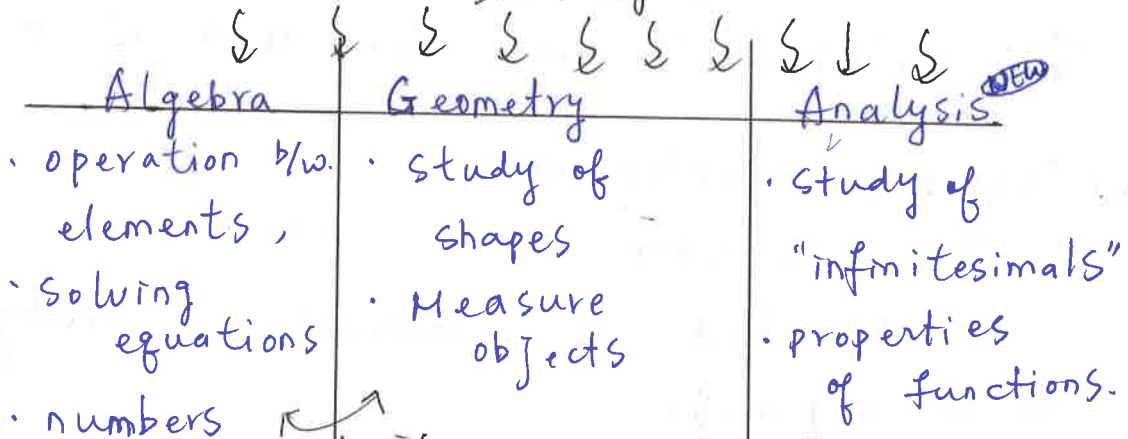
what about



- illustrate w/ figures -

- integral calculus.

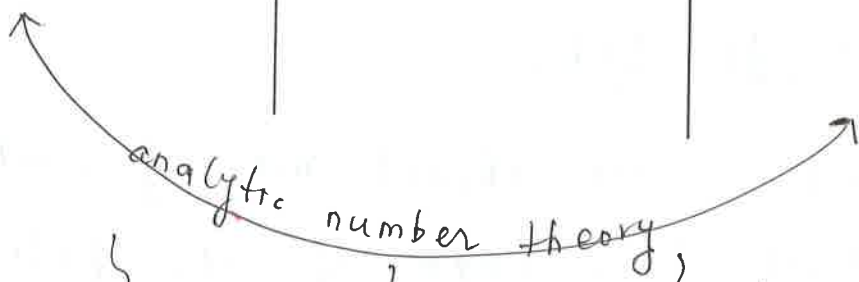
Classification of Math.



algebraic geometry

differential geometry, geometric analysis

probability



Applied Math.

\$ \$ \$