

①

Sept. 9.

Math 190: Calculus Survey

Instructor: Matt Coles

Email: colesmp@math.ubc.ca

Website: www.math.ubc.ca/~colesmp/teaching/M190

Labs (5%)	} each week
Homework (10%)	
Quizzes (15%)	- 6 total
Midterm (25%)	- Nov. 2
Final (45%)	

- No Labs this week
- First HW posted on Monday.
- First Quiz 25th.

Clickers: Participation encouraged!

Text: No required text.

Suggested: James Stewart's: Calculus
Early Transcendentals (any edition)

• Dale Hoffman's:

→ Contemporary Calculus

free online (link on webpage).

②

Sept-9

OH. : Friday after 11.

11 - 1

12 - 2

1 - 3

2 - 4

I am free 11-12.

A - free

B - not free.

Figure out on Friday.

• why study math?

- required / graduate

- knowledge

- useful

- analytical mind / skills.

- logical.

- wider scope.

- transferable.

• why this math (calculus)?

- developed in the 17th century.

- Newton + Leibniz.

- study of change.

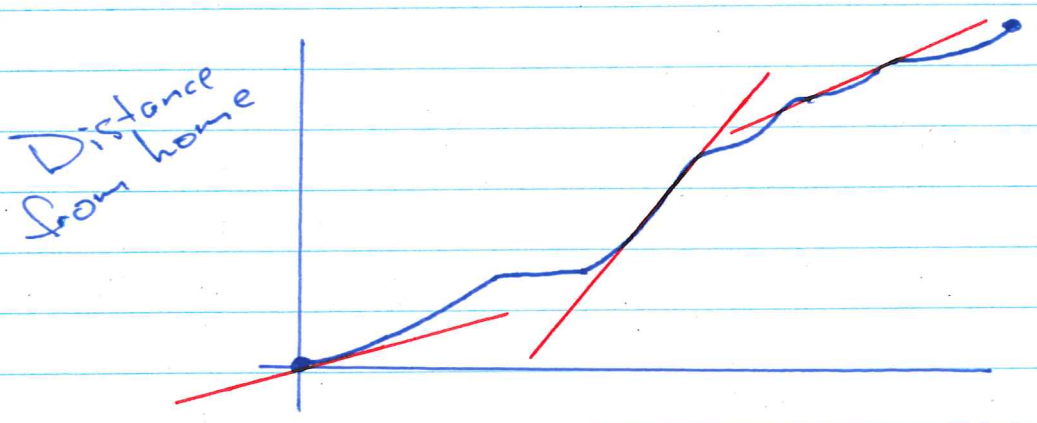
- arguable the industrial revolution required calculus.

Sept. 9.

③

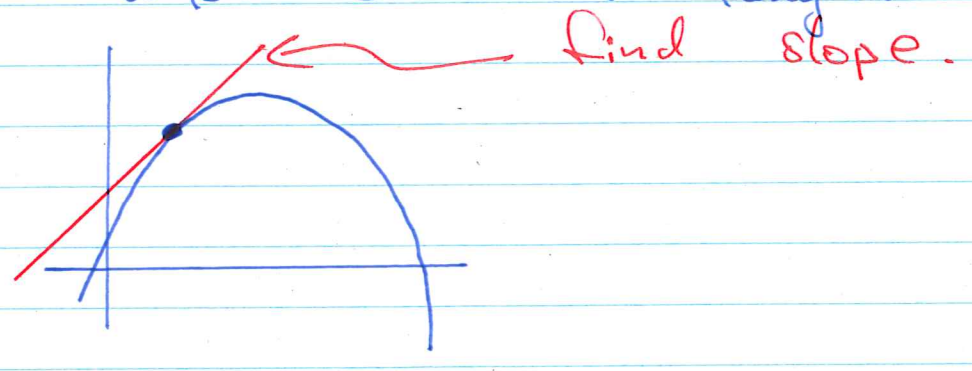
A survey of M190.

Part 1: Differential Calculus



the goal of Differential Calculus is to find the "instantaneous velocity"

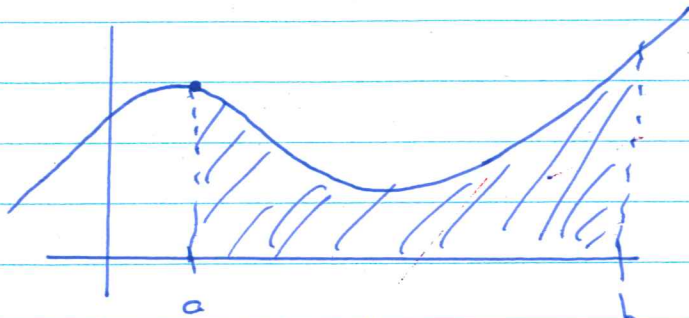
Or more generally, given a function, find the slope of the tangent line.



④.

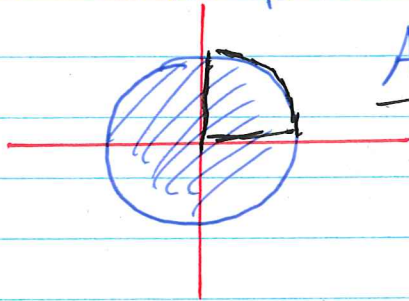
Sept. 9.

Part 2: Integral Calculus.

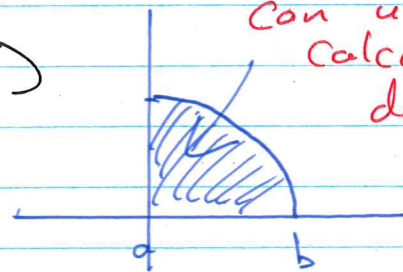
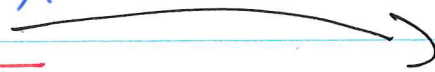


The goal of integral calculus is to find the area under the curve.

For example! what is the area of a circle?



$$A = \pi r^2.$$



Can use integral calculus to do this.

For part 1 we need the derivative and for part 2 we need the integral.

The remarkable fact is that these two operations are intimately related.