Lecture 4

Beamer presentation Example

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Outlines

"Frames" are the basic elements used in **beamer**.

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One frame $\neq$ One slide.

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The command **vfill** can adjust vertical spaces between different paragraphs within one frame.

Basics

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While compiling the source codes, beamer will load common packages that are used for typesetting equations and figures, meaning we don't need to include the following packages in the preamble:

- amsmath
- amssymb
- graphicx

Math environment

(Lab 1 Worksheet)

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$$\begin{aligned} x + 2y - z &= 0 \\ 2x - 3y + 5z &= 3 \quad (2) \\ -3y + 2z &= -8 \quad (3) \end{aligned}$$

Figure

Below is the plot of equation $x^3 + y^3 = 3xy$ in **GeoGebra**.

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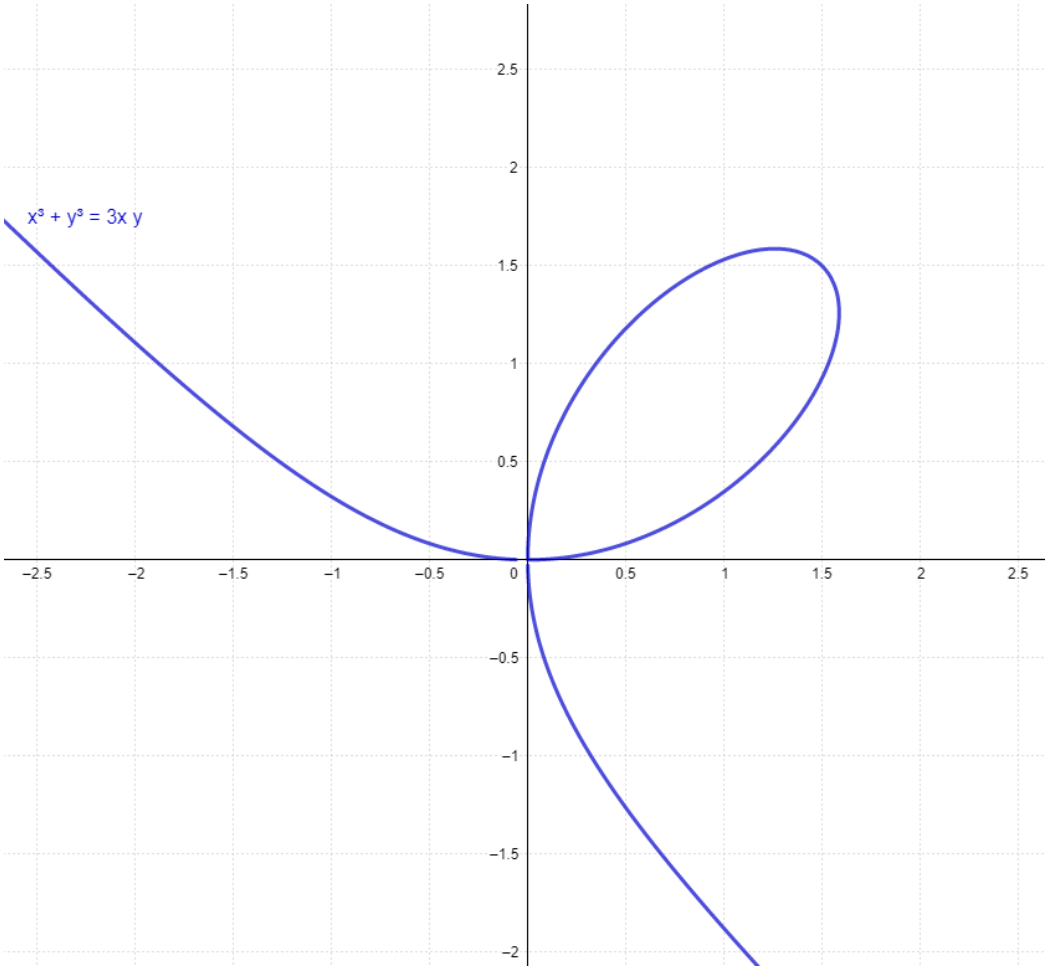

Figure: Folium of Descartes

Table

(Lab 2 Worksheet)

Table: Time Complexity of Sorting Algorithms

Algorithm	Average case	Best case
Insertion Sort	$O(n^2)$	$O(n)$
Selection Sort	$O(n^2)$	$O(n^2)$
Merge Sort	$O(n \log n)$	$O(n \log n)$
Bubble Sort	$O(n^2)$	$O(n)$

Block

A normal block

This is a block, normally used for highlighting the content within.

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This is an alertblock.

Do not abuse blocks!

Columns

Here is a two-column example: equation on the left and figure on the right.

Differentiate both sides of $x^3 + y^3 = 3xy$ w.r.t x:

$$\begin{aligned} 3x^2 + 3y^2\frac{dy}{dx} &= 3y + 3x\frac{dy}{dx} \\ (3y^2 - 3x)\frac{dy}{dx} &= 3y - 3x^2 \\ \therefore \quad \frac{dy}{dx} &= \frac{y - x^2}{y^2 - x} \end{aligned}$$

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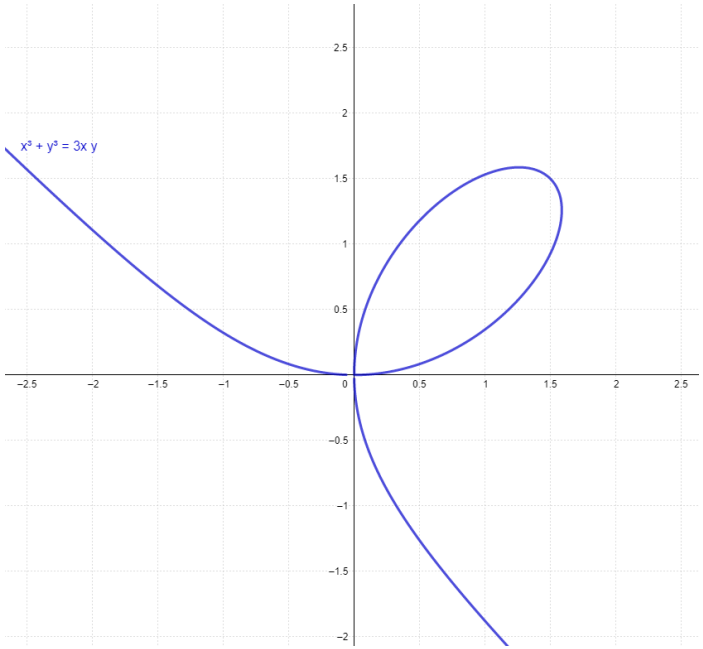

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Note

To use verbatim environment inside beamer frame, the optional setting **[fragile]** is needed (check the source code for this frame).

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T & F\\
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\end{tabular}
```

Output:

p	$\sim p$
T	F
F	T

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