
Noteworthy Framework

Examples & Documentation (Solutions)

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NOTEWORTHY

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Preface

Welcome to the **Noteworthy Framework**. This document serves as both a demonstration of the framework's capabilities and a reference for its features.

About Noteworthy

Noteworthy is a modular framework for creating beautiful educational documents in Typst. It provides a comprehensive set of tools for:

- **Structured Layouts:** Automated chapters, sections, and covers.
- **Themed Components:** Pre-styled blocks for definitions, theorems, examples, and more.
- **Advanced Plotting:** Integrated 2D and 3D plotting capabilities.
- **Customizable Themes:** A robust theming engine with multiple built-in presets.

Using This Guide

Each section of this document demonstrates a specific module of the framework. You can find the source code for these examples in the `content/` directory, which serves as a practical reference for your own documents.

Sihoo Lee & Lee Hojun
Noteworthy

Table of Contents

Chapter 01

Core Components

| | | |
|---------------|-----------------------|---|
| Chapter 01.01 | Content Blocks | 5 |
| Chapter 01.02 | Layout Elements | 7 |

Chapter 02

Plotting & Geometry

| | | |
|---------------|----------------------------|----|
| Chapter 02.01 | Basic Plots | 9 |
| Chapter 02.02 | Geometry (Geoplot) | 11 |
| Chapter 02.03 | Vectors (Vectorplot) | 12 |
| Chapter 02.04 | 3D Space (Spaceplot) | 13 |

Chapter 03

Data & Visualization

| | | |
|---------------|-----------------------|----|
| Chapter 03.01 | Function Graphs | 15 |
| Chapter 03.02 | Combinatorics | 17 |
| Chapter 03.03 | Tables | 18 |

Chapter 01

Core Components

This chapter demonstrates the fundamental building blocks of the Noteworthy framework, including text blocks, layouts, and basic document structure.

Chapter 01.01

Content Blocks

Content Blocks

Noteworthy provides a variety of semantic blocks to structure your educational content.

Definitions & Theorems

DEFINITION | Vector

A **vector** is a quantity that has both magnitude and direction. It is often represented by an arrow.

THEOREM | Pythagorean Theorem

In a right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides:

$$a^2 + b^2 = c^2$$

Proofs & Solutions

Proof |

Let a, b be the lengths of the legs and c be the length of the hypotenuse. Construct a square of side $a + b$. ∴ The area relationships confirm the theorem.

EXAMPLE | Finding the Hypotenuse

Given a right triangle with legs of length 3 and 4, find the length of the hypotenuse.

Solution 1 |

Using the Pythagorean theorem:

$$c = \sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$$

Notes & Remarks

NOTE | Important

Always remember to check the units when solving physics problems using vectors.

NOTATION | Vector Notation

Vectors are typically denoted by boldface letters (\mathbf{v}) or arrows (\vec{v}).

ANALYSIS | Geometric Interpretation

Geometrically, vectors can be added using the parallelogram rule or the triangle rule.

Chapter 01.02

Layout Elements

Layout Elements

This section demonstrates various layout utilities available in Noteworthy.

Equations

EQUATION | Maxwell's Equations

$$\nabla \cdot (E) = \frac{\rho}{\epsilon_0}$$

$$\nabla \cdot (B) = 0$$

$$\nabla \times (E) = -\partial \frac{(B)}{\partial t}$$

$$\nabla \times (B) = \mu_0(J) + \mu_0\epsilon_0\partial \frac{(E)}{\partial t}$$

Conditional Content

Noteworthy supports conditional rendering based on the `show-solution` configuration.

NOTE | Instructor's Note

This content is only visible when `show-solution` is set to `true` in `config.typ`.

Custom Snippets

You can define custom math snippets in `config.typ` for faster typing.

such that
without loss of generality
 \therefore Q.E.D.

Chapter 02

Plotting & Geometry

Explore the powerful plotting capabilities of Noteworthy, from basic 2D graphs to complex geometric constructions and vector diagrams.

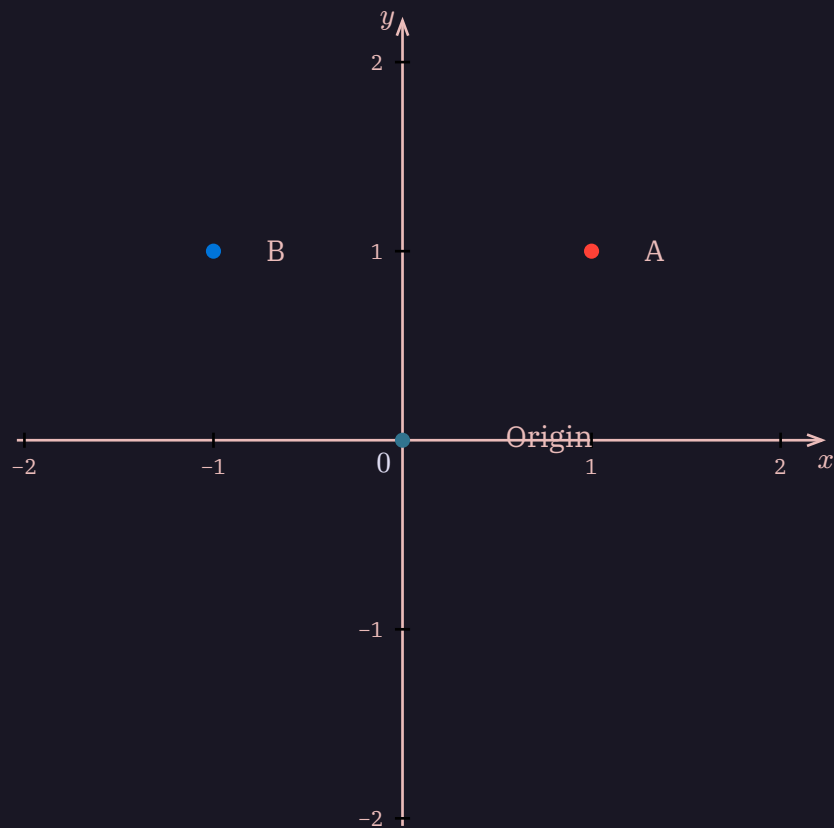
Chapter 02.01

Basic Plots

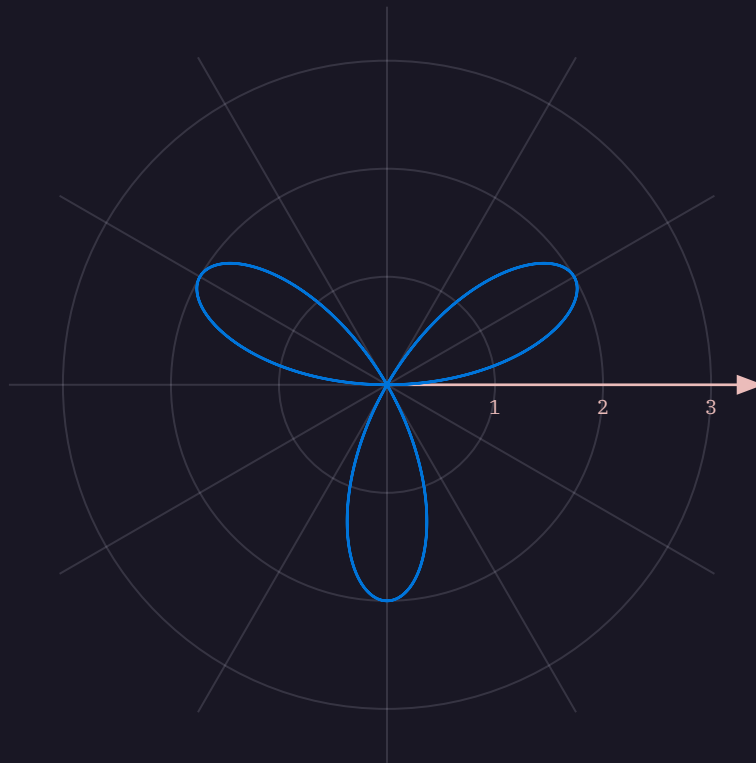
Basic Plots

Noteworthy includes a powerful plotting engine based on CeTZ.

Rectangular Plots

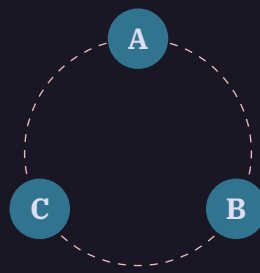


Polar Plots



Blank Plots (Combi-plot)

Useful for diagrams without axes.



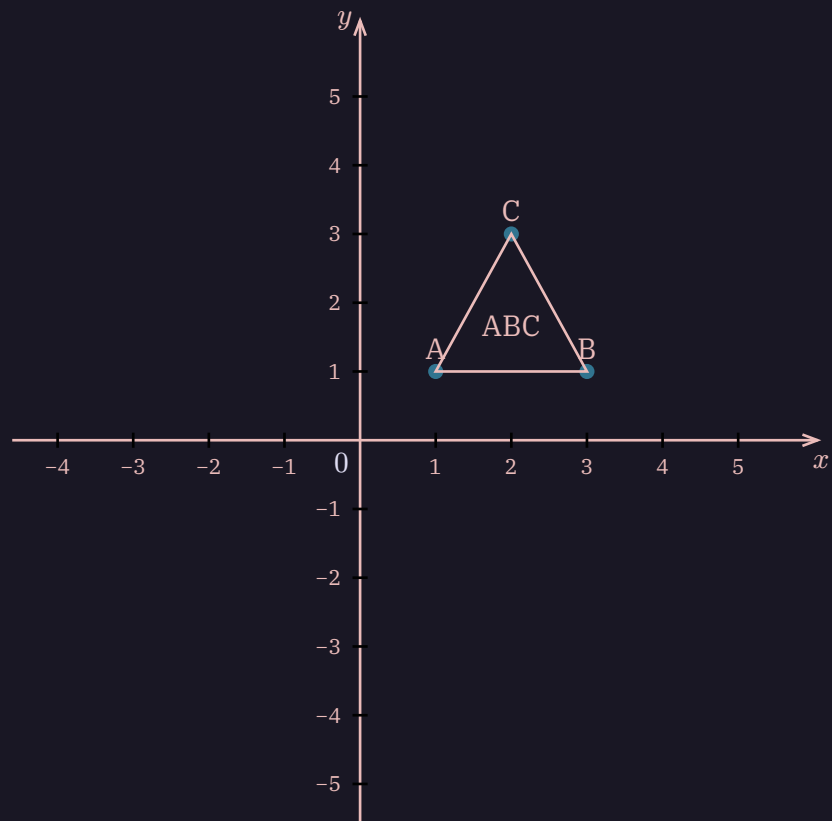
Chapter 02.02

Geometry (Geoplot)

Geometry (Geoplot)

The `geoplot` module provides tools for Euclidean geometry constructions.

Points & Polygons



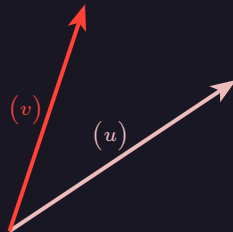
Chapter 02.03

Vectors (*Vectorplot*)

Vectors (*Vectorplot*)

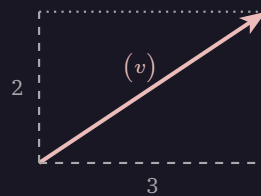
Visualize vectors and vector operations.

Vector Drawing

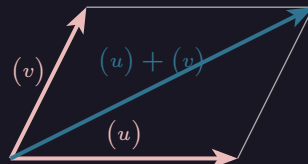


Vector Components

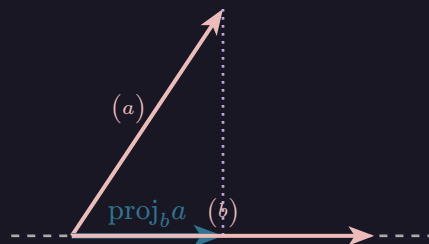
Shows the x and y components of a vector.



Vector Addition



Vector Projection

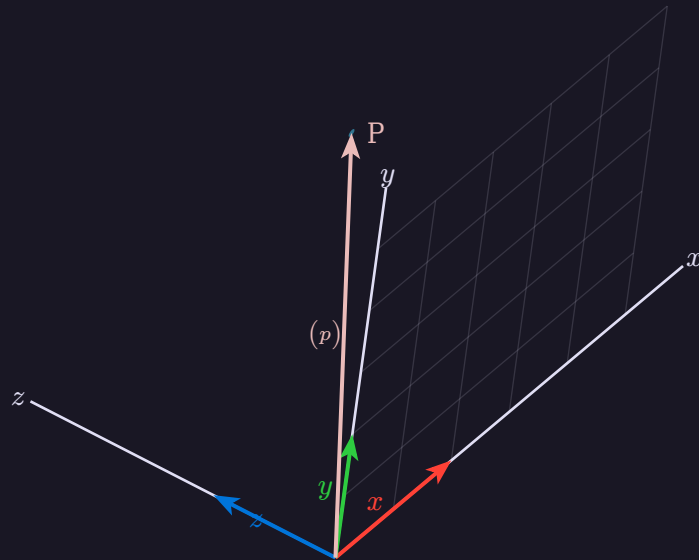


Chapter 02.04

3D Space (Spaceplot)

3D Space (Spaceplot)

Render 3D scenes with correct perspective.



Chapter 03

Data & Visualization

Learn how to visualize data and mathematical concepts using the Grapher, Combiplot, and Tableplot modules.

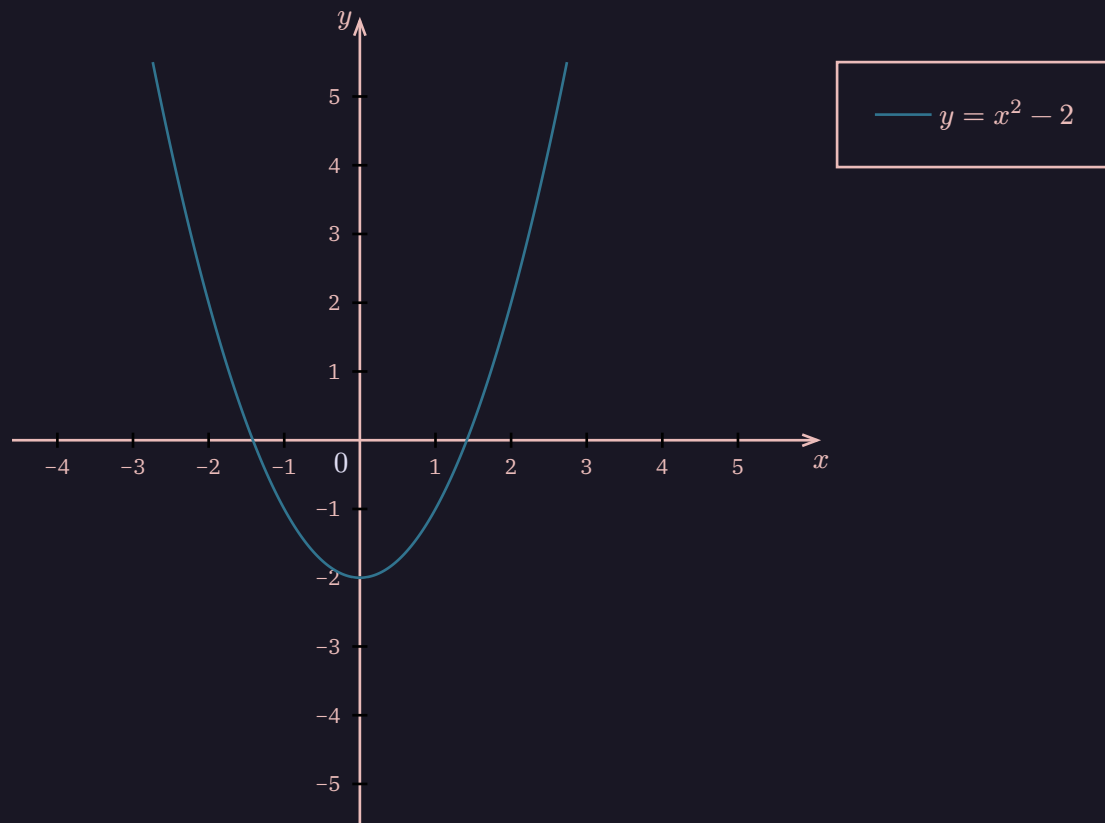
Chapter 03.01

Function Graphs

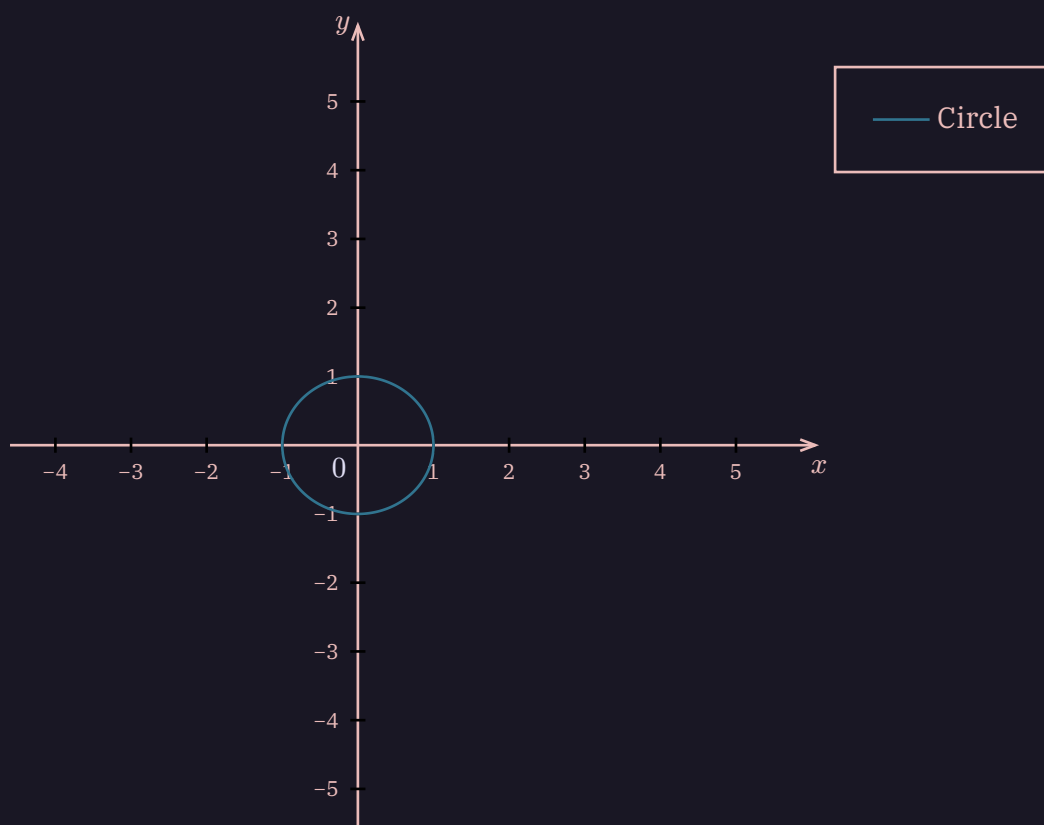
Function Graphs

Plot mathematical functions easily.

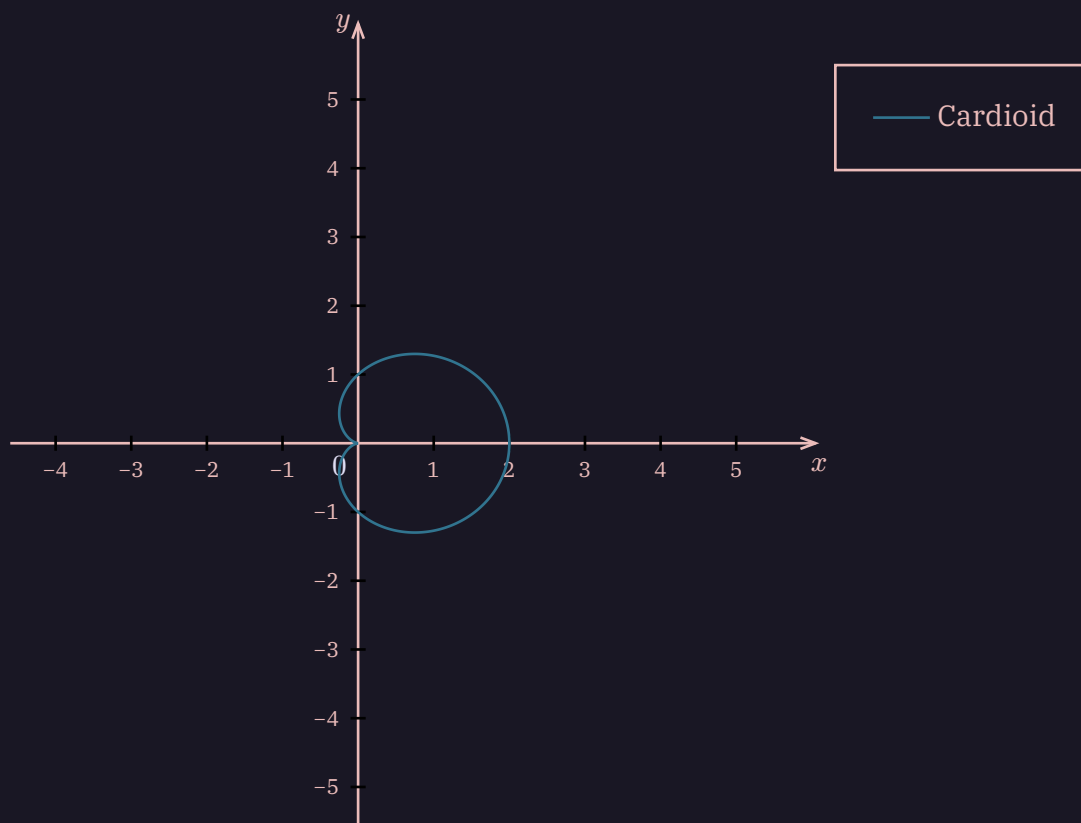
Cartesian Functions



Parametric Functions



Polar Functions



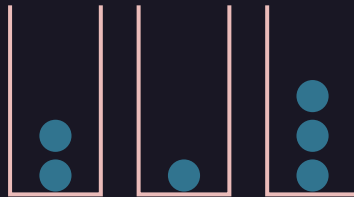
Chapter 03.02

Combinatorics

Combinatorics

Visualizations for counting problems.

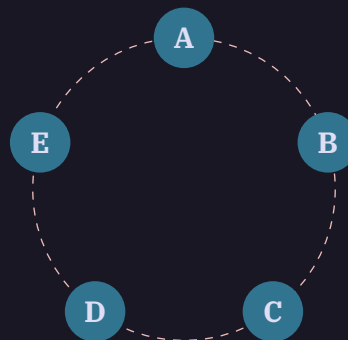
Stars and Bars (Boxes)



Linear Arrangements



Circular Arrangements



Chapter 03.03

Tables

Tables

Themed tables for data presentation.

Standard Table

| Name | Role | Level |
|---------|----------|--------|
| Alice | Engineer | Senior |
| Bob | Designer | Mid |
| Charlie | Manager | Lead |

Compact Table

| ID | Status |
|-----|--------|
| 001 | OK |
| 002 | Fail |
| 003 | OK |

Value Table (Function Values)

| x | $f(x)$ |
|-----|--------|
| 1 | 2 |
| 2 | 4 |
| 3 | 8 |

Grid Table

| | |
|-----|-----|
| 100 | 120 |
| 110 | 130 |