

1. Project Overview This project consists of interactive web pages that visually demonstrate solutions to mathematical problems. The pages cover: 1. Interest Problems (Simple Interest and Compound Interest). 2. Trigonometry Problems (Right-angled triangles, hypotenuse calculation, ladder problem).

The design uses HTML, CSS, and SVG for diagrams. The focus is on clarity, step-by-step explanations, and visual appeal.

2. Objectives - Present problems with clear step-by-step solutions. - Use visual aids (arrows, boxes, triangles) to enhance comprehension. - Maintain a consistent and attractive layout. - Highlight key results using distinct colors and typography.

3. Technologies - HTML5: Semantic structure. - CSS3: Styling, layouts, highlighting results. - SVG: For diagrams and shapes.

4. Layout Design

4.1 Interest Problems Page - Each problem in `.problem-block` - `.container` is a flexbox with: - `.arrow-col` → Step progression arrows. - `.left-col` → Step-by-step calculation. - `.right-col` → Summary box (principal → amount or SI).

UI Elements: - `.numbox`: Plain numeric values. - `.varbox`: Variables. - `.highlight`: Key results. - `.bracket`, `.fraction`: Fraction representation. - `.blackbox`: Summary results.

Visual Flow: Step 1 → Step 2 → Step 3 → Final Answer (arrows indicate progression)

4.2 Trigonometry Problems Page - `.container` flex layout: - Left: `.explanation-box` with `.math-box` for each step. - Right: `.triangle-diagram` with points A, B, C.

UI Elements: - `.triangle-diagram`: Triangle representation. - `.label`: Point labels. - `.dimension`: Side lengths. - `.math-box`: Step formulas. - `.answer-box`: Highlighted answer.

5. Styling & Color Scheme | Element | Style / Color | |-----|-----| | Body | White/light grey, font: Calibri, size 27px, bold | | Highlight | Green (#1BAD83) | | Boxes | Light shadows, rounded corners | | Arrows | Grey, font size 30px | | Triangle Points | A: pink, B: blue, C: teal | | Dimension Labels | Gradient backgrounds | | Shadow | Light box-shadow |

6. Responsiveness - Max-width for containers. - Flexbox columns adjust automatically. - Future: Media queries for mobile layout, scalable SVGs.

7. Accessibility - Semantic HTML tags. - High contrast colors. - Future: `aria-labels` for diagrams.

8. Potential Enhancements 1. Interactive calculations. 2. Step transition animations. 3. Responsive SVG diagrams. 4. Dark mode toggle. 5. JavaScript-based dynamic formulas.

9. File Structure

```
math-problems/  
├─ index.html      # Interest problems  
├─ trigonometry.html # Trigonometry problems  
├─ colourCode.css  # Shared CSS  
└─ images/         # Optional images
```

10. Summary - Goal: Visual, intuitive understanding of math problems. - Design: Step-by-step + visual + highlights. - Future: Can be converted into an interactive learning web app.