

Author Name

A Textbook For

Subject Name

*Subtitle*

More Text Can Go here

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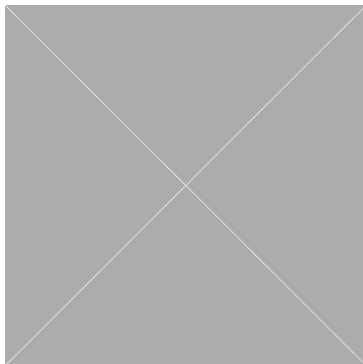
# Chapter 1 Examples of Usage

## 1.1 Functions and Environments

### Objectives

In this section, we learn how to use basic environments. We will

- learn how to use the `benumerate` environment for lists.
- learn how to use the `ienumerate` environment for lists.
- learn how to use the `theorem`, `definition`, `example`, `solution`, `exercise`, and `remark` environments



**Figure 1.1:** This is a how you put a figure in the margin.

Some text...

This is how you refer to Table 1.2, which is defined below in the “.tex” file.

This is how you make a list to denote an example with parts. This paragraph will be indented. It uses the environment `benumerate` to start the list environment on the second level and with bold styling.

- a.** first
- b.** second
- c.** third

If your list is small enough to fit one line, use the `ienumerate` environment.

- a.** first                      **b.** second                      **c.** third

**Theorem 1.1 — Pythagorean Theorem** For any right triangle with legs  $a$ ,  $b$  and hypotenuse  $c$ , the following is always true:

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

**Definition 1.1 — Triangle** A **triangle** is a polygon with three sides.

**Example 1.1 — Optional Name of Example** Text goes here. Solve the equation  $x + 1 = 4$ .

**Solution** To solve we subtract 1.

$$\begin{aligned} x + 1 &= 3 \\ x &= 3 - 1 \\ x &= 2 \end{aligned}$$

Do not leave blank lines at the end of the solution environment. Otherwise, the black square will be misplaced. ■

**Example 1.2** Find the derivatives of the following functions.

- a.**  $f(x) = 3x^2$
- b.**  $g(x) = e^{3x}$
- c.**  $h(x) = \cos(5x)$

**Solution** The derivatives are as follows.

- a.**  $f'(x) = 6x$
- b.**  $g'(x) = 3e^{3x}$
- c.**  $h'(x) = -5\sin(5x)$

**Exercise 1.1 — Optional Name** I would imagine this environment will be rarely used.

**Remark 1.1** This is an example of the `remark` environment. I would imagine this environment will be rarely used.

## 1.2 Positioning Figures and Tables

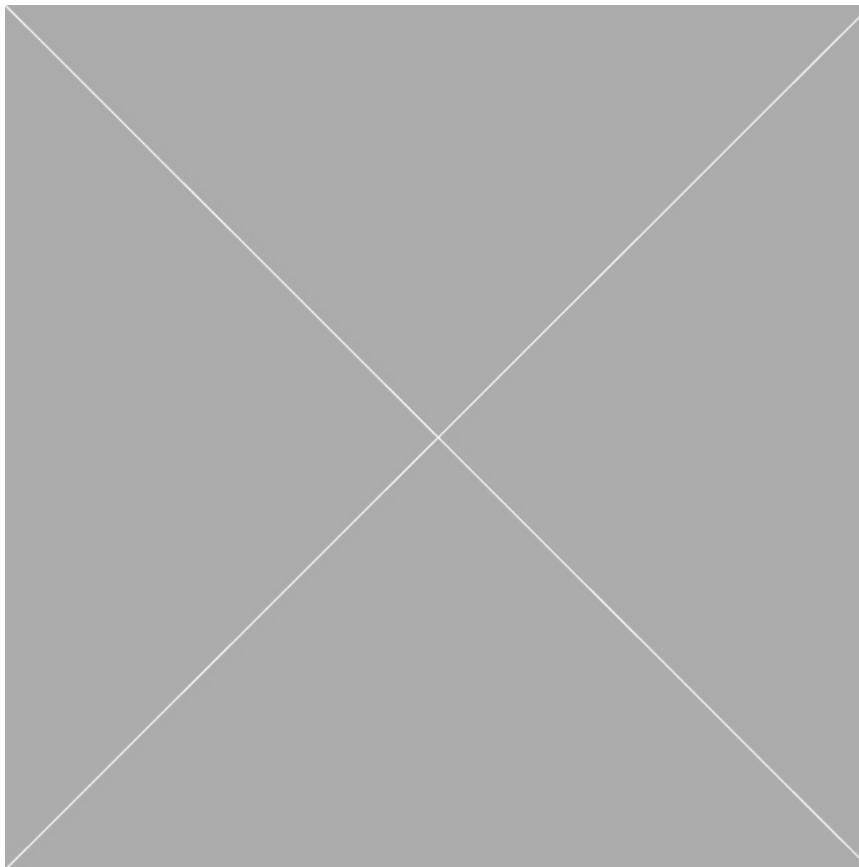
### Objectives

In this section, we learn how to create useful layouts. We will

- learn to place figures within the main column of text.
- learn to place figures that go into the margin.
- learn to place figures within the margin.
- learn to place figures side-by-side in different ways.

Dealing with figures in  $\text{\LaTeX}$  is not easy. This is a collection of different ways to position figures. Figures are usually intended to be “floating,” which means that  $\text{\LaTeX}$  has discretion on where to place them within the document.

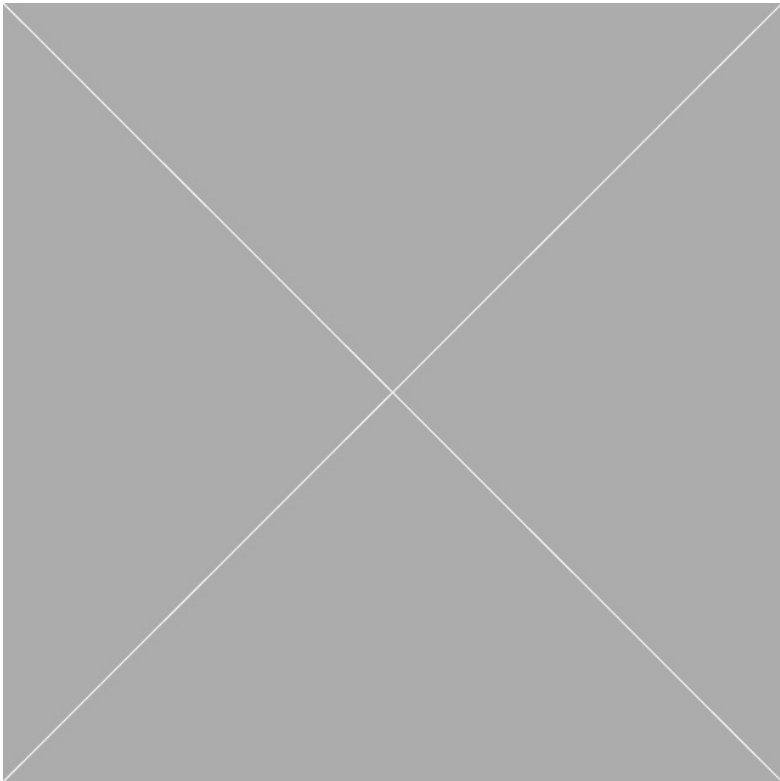
This is how you include an image, that is not intended to be a figure.



The following will have a non-floating figure. The figure will not move from the position it's placed

**Table 1.1:** This is a caption for a table that will be placed in the margin.

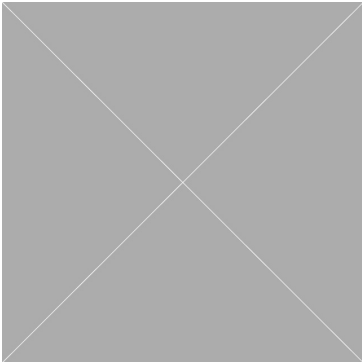
x	y	z
1	2	3



**Figure 1.2:** A non-floating figure. The figure will not move from the position it’s placed

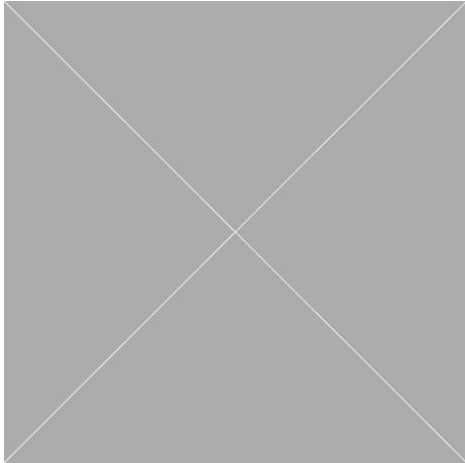
**Table 1.2:** This is a caption for a table that will be placed in the main text.

x	y	z
1	2	3

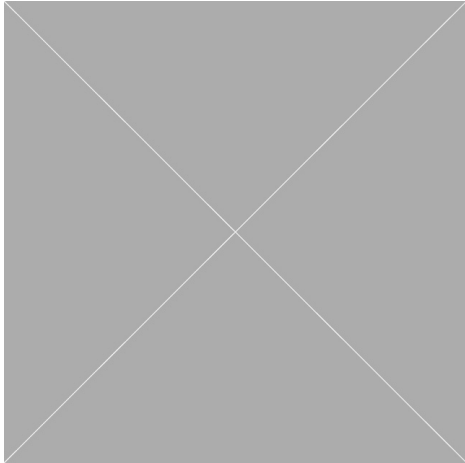


**Figure 1.3:** This is a how you put a figure in the margin.

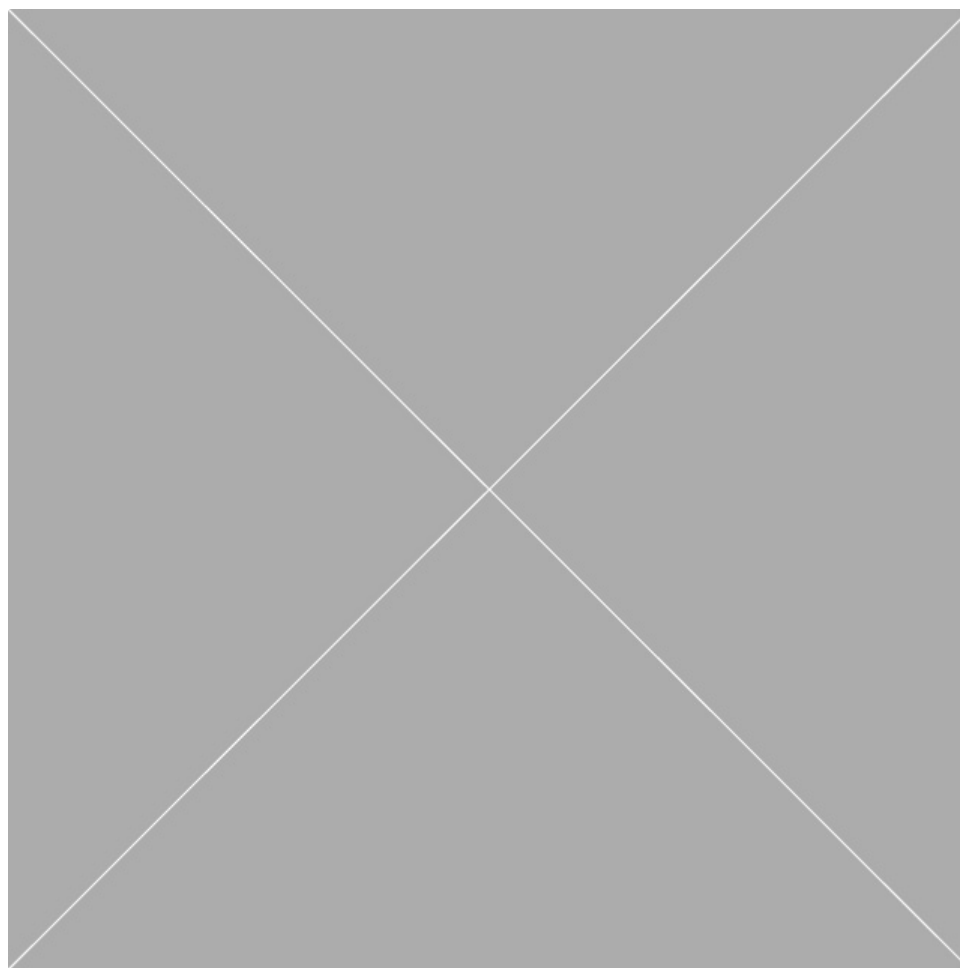
These are non-floating side-by-side figures.



**Figure 1.11:** Side-by-side figures.

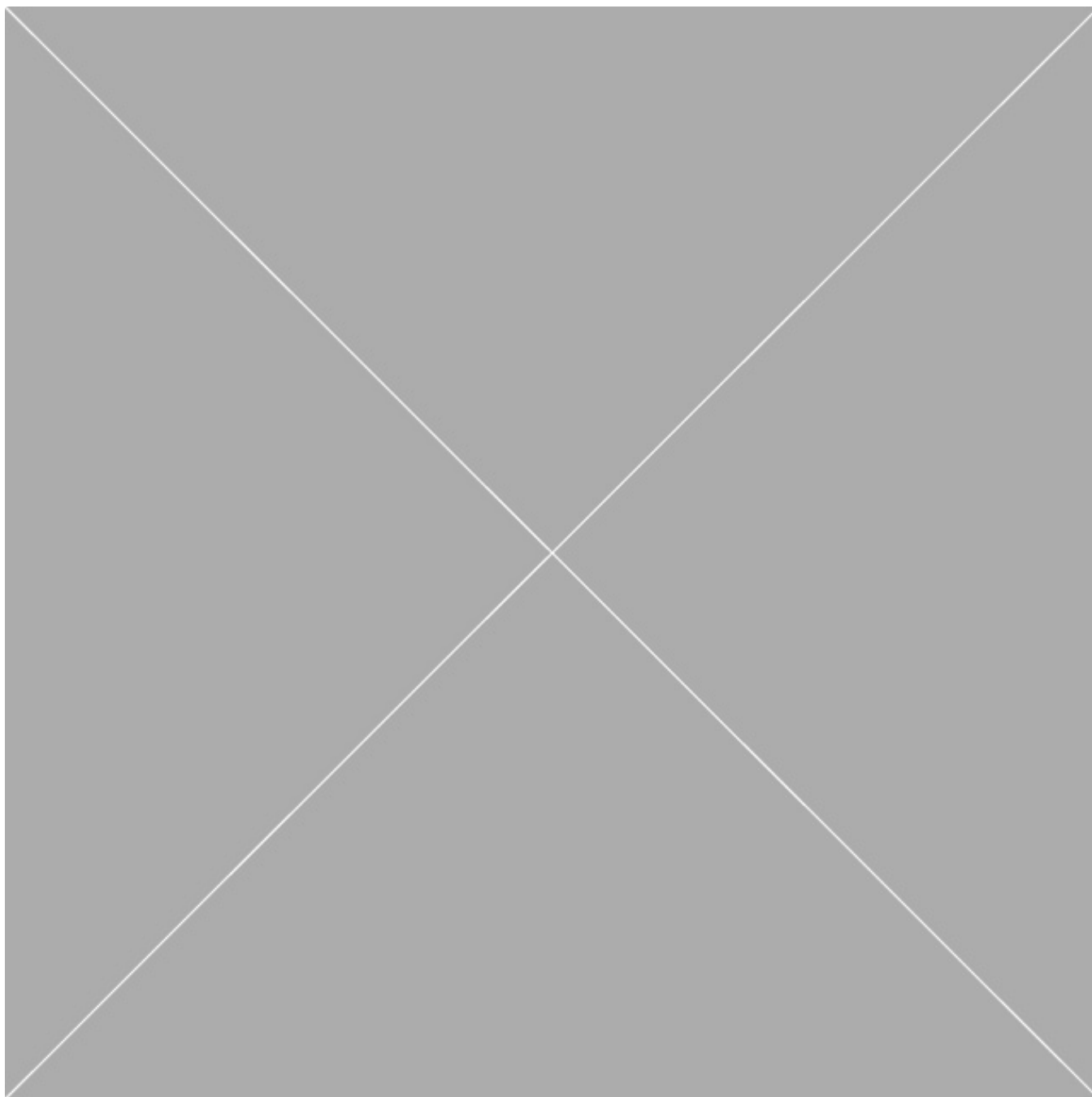


**Figure 1.12:** Side-by-side figures.



**Figure 1.4:** This is a how you put a floating figure in the main text.





**Figure 1.5:** This is a how you put a **wide** floating figure in the main text.

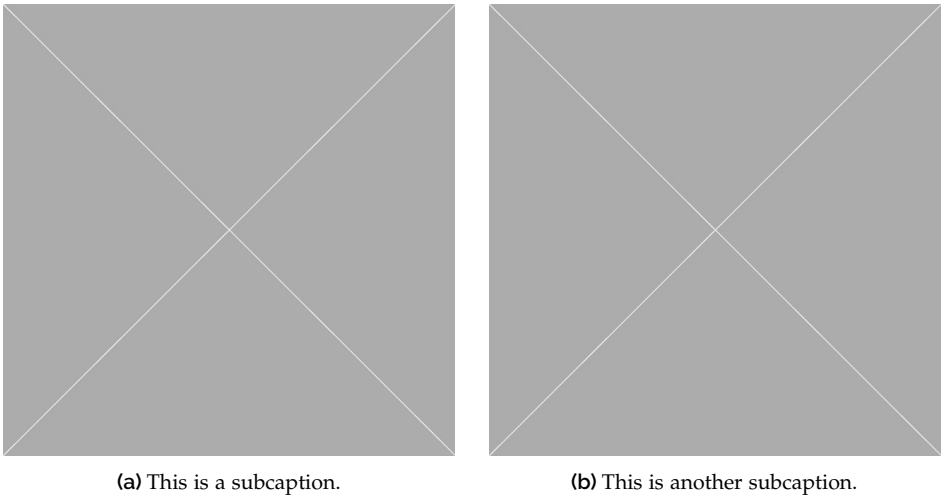


Figure 1.6: This is a how you put subfigures in a figure.

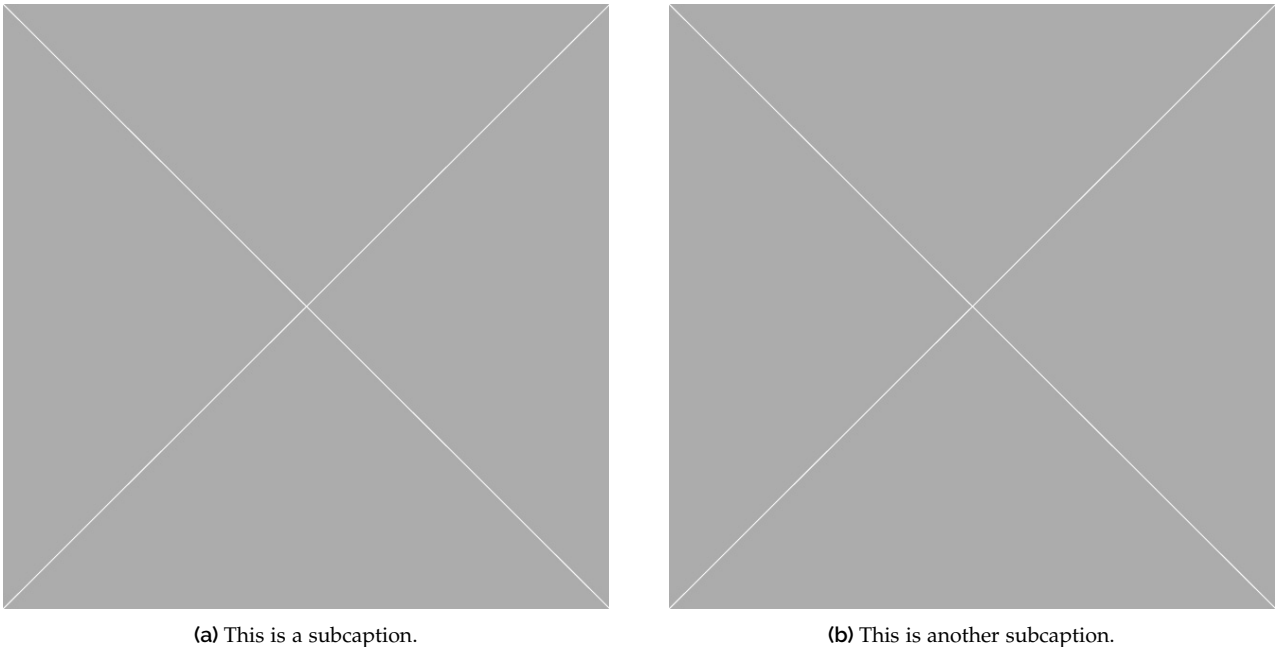


Figure 1.7: This is a how you put subfigures in a wide figure.

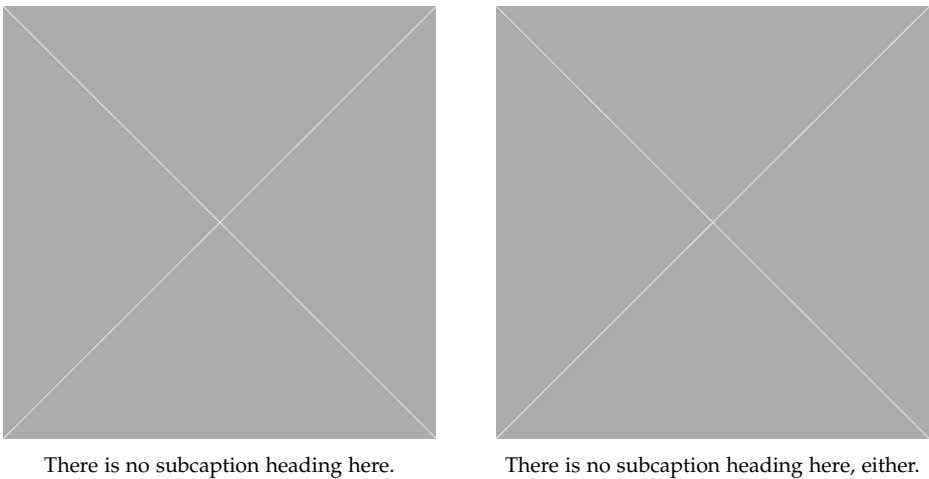
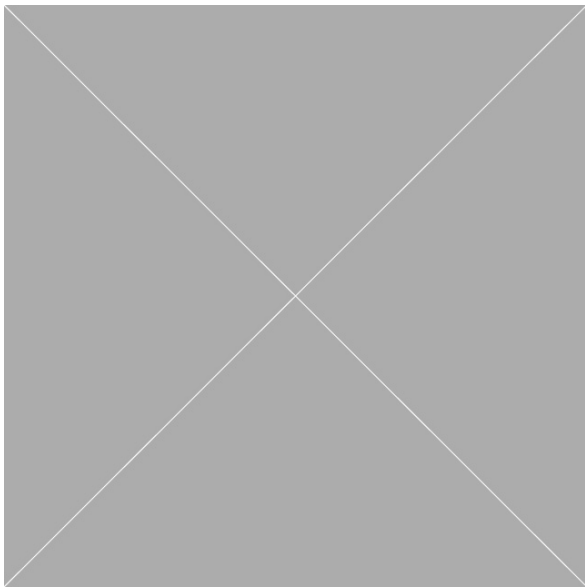
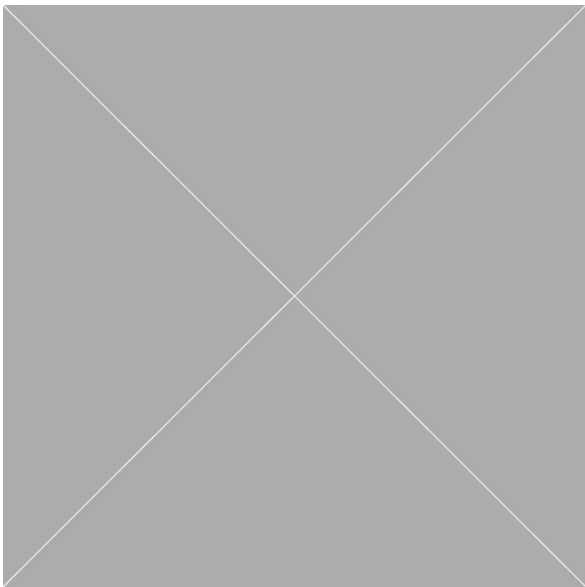


Figure 1.8: This is a how you put subfigures without a subcaption heading.



**Figure 1.9:** This is how you put side-by-side figures.

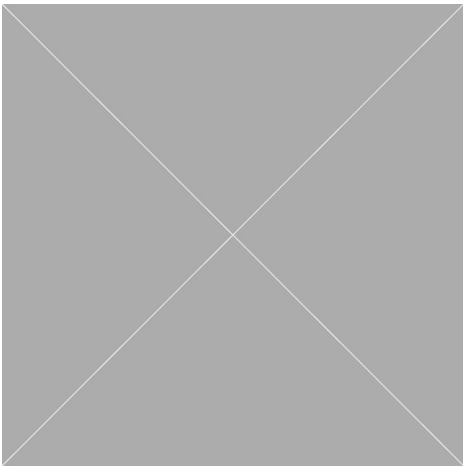


**Figure 1.10:** This is how you put side-by-side figures.

This is a floating table next to a figure.

**Table 1.4:** This is a caption for a table.

x	y	z
1	2	3

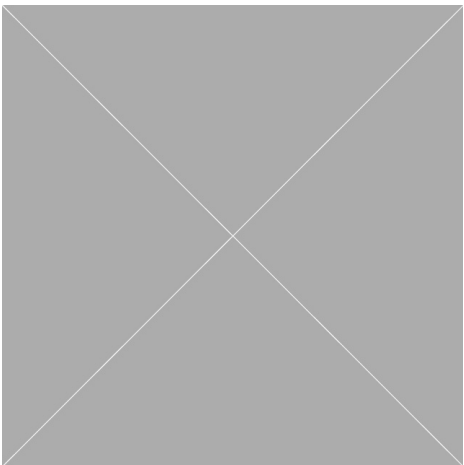


**Figure 1.14:** Side-by-side figures.

This is a non-floating table next to a figure.

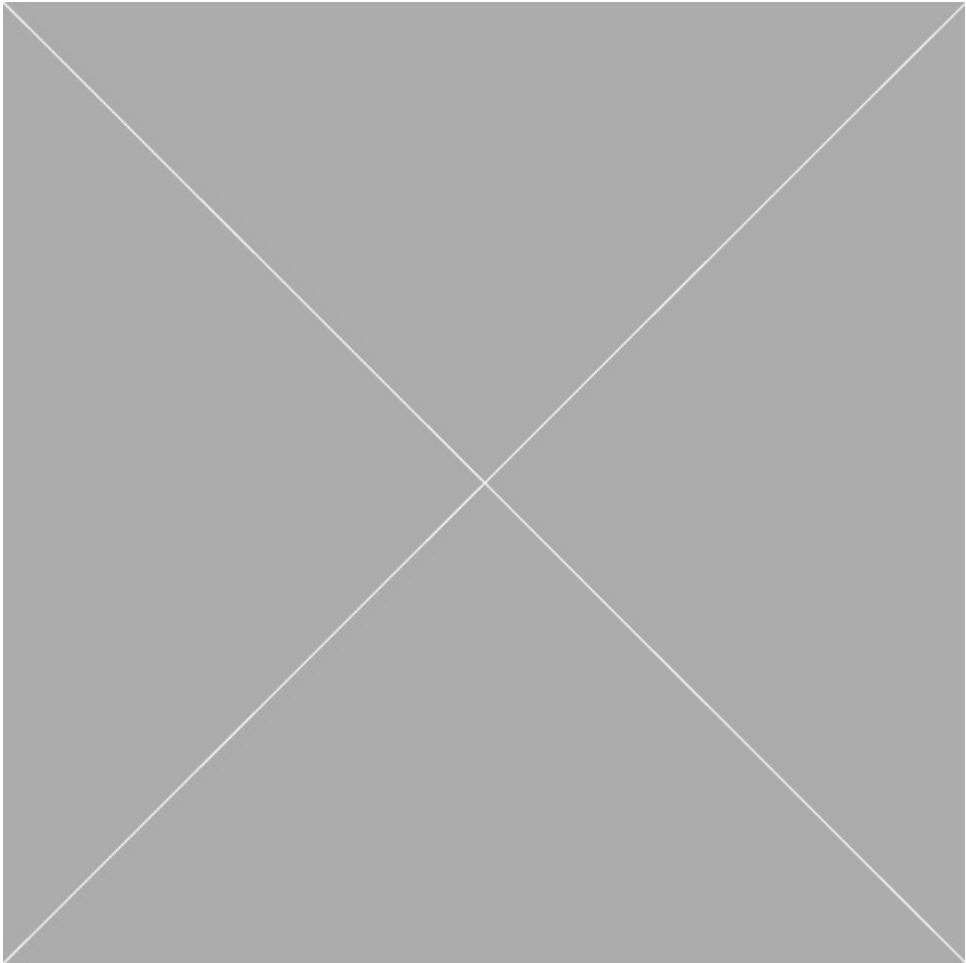
**Table 1.3:** This is a caption for a table.

x	y	z
1	2	3

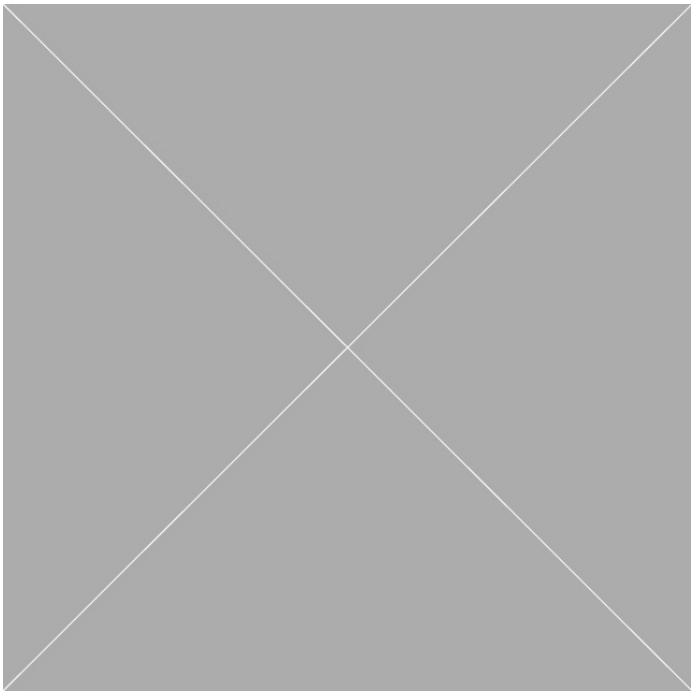


**Figure 1.13:** Side-by-side figures.

**Figure 1.15:** This is a figure with a caption in the margin.



**Figure 1.16:** This is a figure with a caption in the margin.



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