

Scales - Technical Drawing

Scale: Depiction of an object in which its dimensions (and those of its elements) are proportional to the actual dimensions in a predetermined ratio.

We can find three different types of scales:

1. Real or full scale.
2. Reduction scale.
3. Enlargement scale

Full scale drawings show the actual size of an object. If the object is either too small or too large to draw full scale, the designer scales it up or down. Technical drawings are drawn to scale so that engineers, architects and builders can create the objects in the drawing to exact specifications. When reading scales, the number on the left equals the measurement on the drawing; the number on the right is the actual size.

The correct way to show the scale of a technical drawing is like this:

Measurement in my draw	·	Real measurement
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- It is necessary to have the number 1 in one of the two spaces.
- The metric unit used has to be the same in the two spaces.
- According to this, we can find:
 1. Real or full scale. $1 : 1$
 2. Reduction scale $1 : \text{xxxx}$
 3. Enlargement scale $\text{xxxx} : 1$

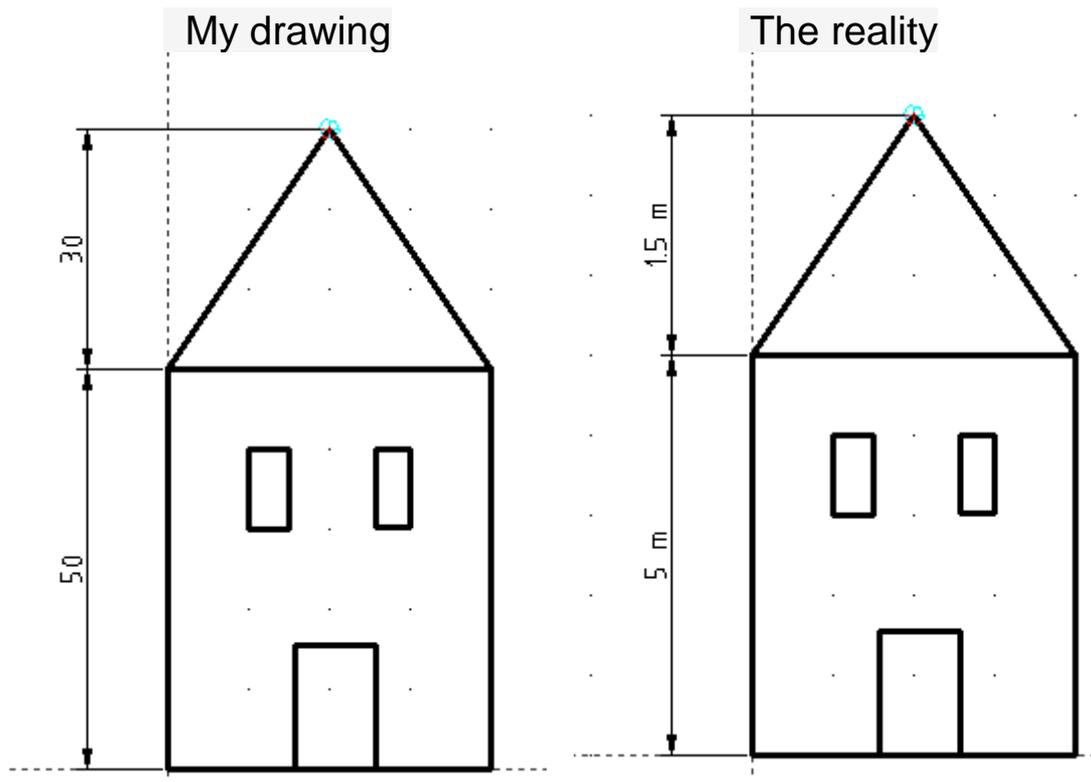
(xxxx is a number bigger than 1)

How to know the scale of my drawing:

- Put the two dimensions in the same units (draw and real)
- Put the numbers in the correct place
- Divide the two numbers into the adequate number to get the number one.
- Write the result like the example (using the :)

Examples:

a) What is the scale of this drawing?



- Choose one of the dimensions (for example 5 m)
- Put the relationship. My drawing : the real size $50\text{mm} : 5\text{m}$
- Put the same units on both sides. $50\text{ mm} : 5000\text{ mm}$
- Remove the units $50:5000$
- Divide two sides by the same number, looking for the number one. In this case I am going to divide by 50 $50/50: 5000/50$
- Complete the operation $1 : 100$
- And you are finished **$1 : 100$**

b) What is the appropriate scale for drawing your table?

- Start measuring the table (the longer side) 150cm
- Continue measuring the paper (the space you have for drawing) 15 cm
- Put the relationship. My space : the real size $15\text{ cm} : 150\text{ cm}$
- Put the same units on both sides. $15\text{ cm} : 150\text{ cm}$
- Remove the units $15 : 150$
- Divide two sides by the same number, looking for the number one. In this case I am going to divide by 15 $15/15 : 150/15$
- Complete the operation. You have the scale **$1 : 10$**
- In order to draw the rest of the table, measure every side of the table, divide it into ten, and this is the distance you have to put in your drawing.
- And you are finished.