

# Ramps and accessibility



# Introduction

Go to buy bread, walk the dogs or just go to the cashier to remove money for daily life, can be insignificant tasks that not involve any effort, unless in the case of a diseable or with reduced mobility person.

Therefore, construction companies, and public institutions especially, must do everything to facilitie their displacement to these people.

Unfortunately, and for various reasons such as:

- Thoughtless of the situation at the time of building infrastucture.
- Job incompetent
- Conditions where the task is impossible.

This situation should not happen.

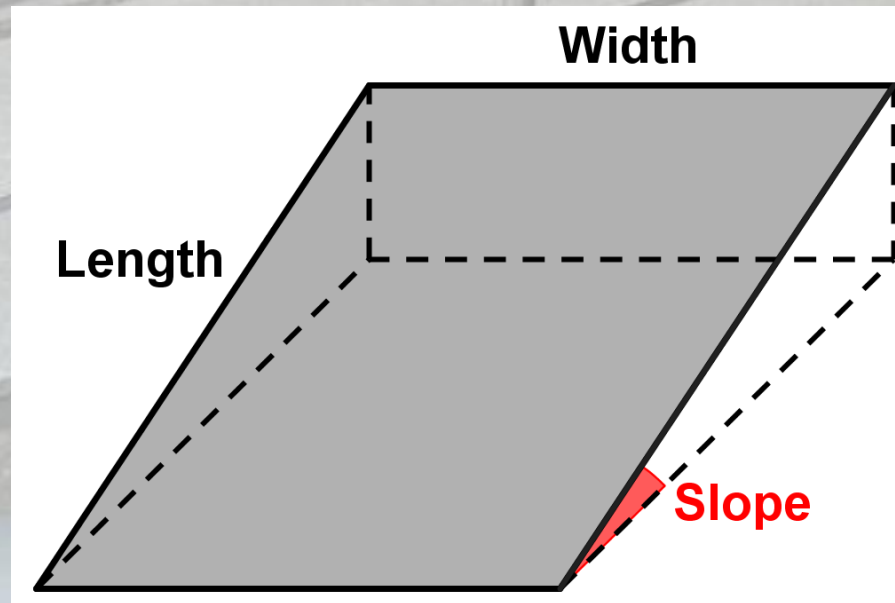
# What does the work consist of?



Our work was simple, just measure different ramps of different areas and, with the help of “Manual of Ramps and Accesibility of Galicia” provided by our Drawing teacher, Jaime Rodríguez, investigate whether they carry out with rules or not, and finally, with the data found to do a map where the most “illegal” and most “legal” in this aspect areas are shown.

# Rules of accessibility (Galicia. Spain)

Slope	Length	Width
10%	< 3 m	1,5 m
8%	< 10 m	1,5 m
6%	≤ 20 m	1,5 m



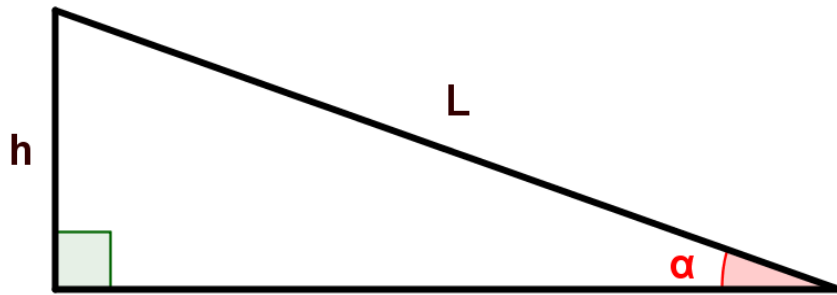
# The slope of a ramp: a problem to solve

Regulations specify the width and slope that a ramp should have. The width can be measured directly with a tape measure. But measuring the inclination angle or slope is difficult sometimes. A ramp is, geometrically, a rectangled triangle. We can easily measure the hypotenuse of the triangle but usually the length of any of the two legs can not be measured directly.



*Ramp in a inclined road*

# The slope of a ramp: a problem to solve



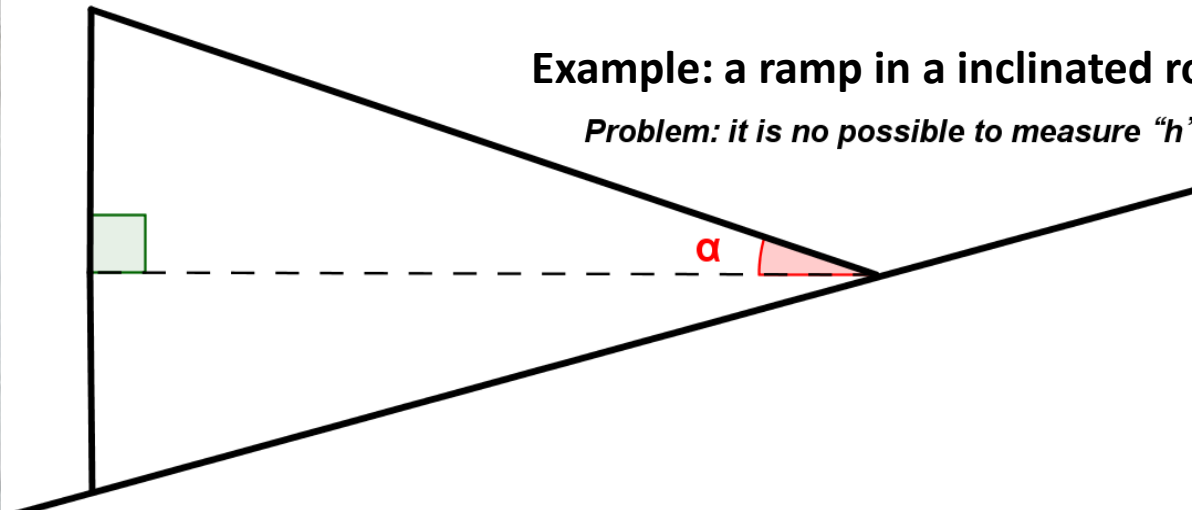
$$\alpha = \sin^{-1}\left(\frac{h}{L}\right)$$

$$\text{Slope} = \tan(\alpha)$$

$$\text{Slope (\%)} = \tan(\alpha) \cdot 100$$

**Example: a ramp in a inclined road**

*Problem: it is no possible to measure "h"*



# The slope of a ramp: a problem to solve

Therefore, we should solve the problem is how to measure one of the legs of the triangle for, with this data, measuring the inclination angle of the ramp. To do this, we used the following material:

- A laser pointer
- Level tool
- Surveying rod



# The slope of a ramp: a problem to solve

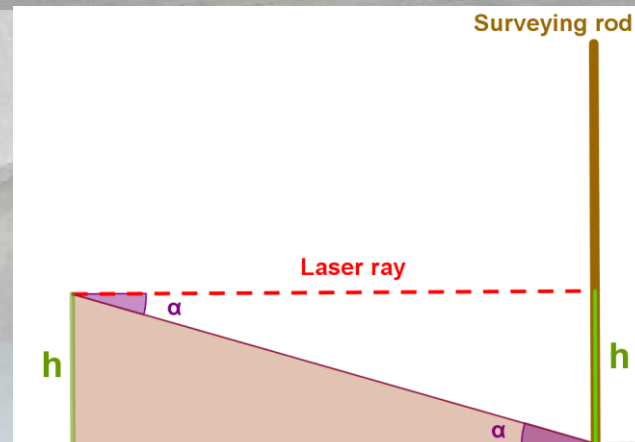
We are located at the top of the ramp and placed the pointer on the level tool. In this way, we guaranteed that the straight line which determines the laser light pointer results a parallel line to the horizontal plane. The laser will mark a height in the surveying rod.





# The slope of a ramp: a problem to solve

Subtracting the height at which the light of the laser pointer is to the mark of the laser on the surveying rod, we will obtain the maximum height of the ramp. That is, we will obtain one of the legs of the triangle. Using the expression we will obtain the value of the inclination angle of the ramp and the value of the slope.



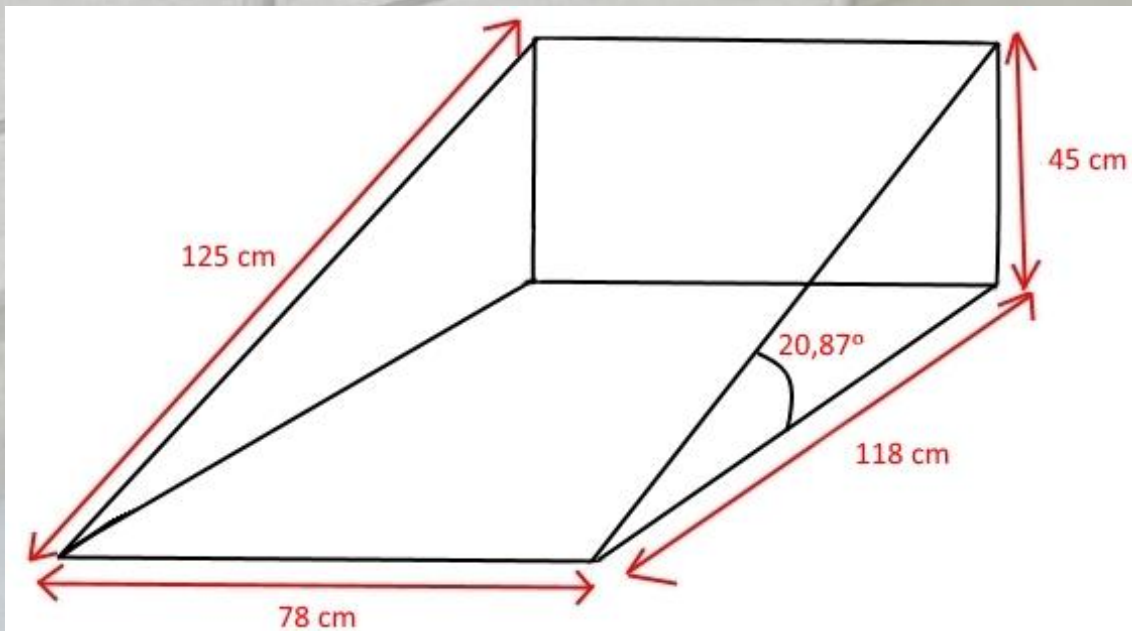
# Measured ramps



# 1st Ramp



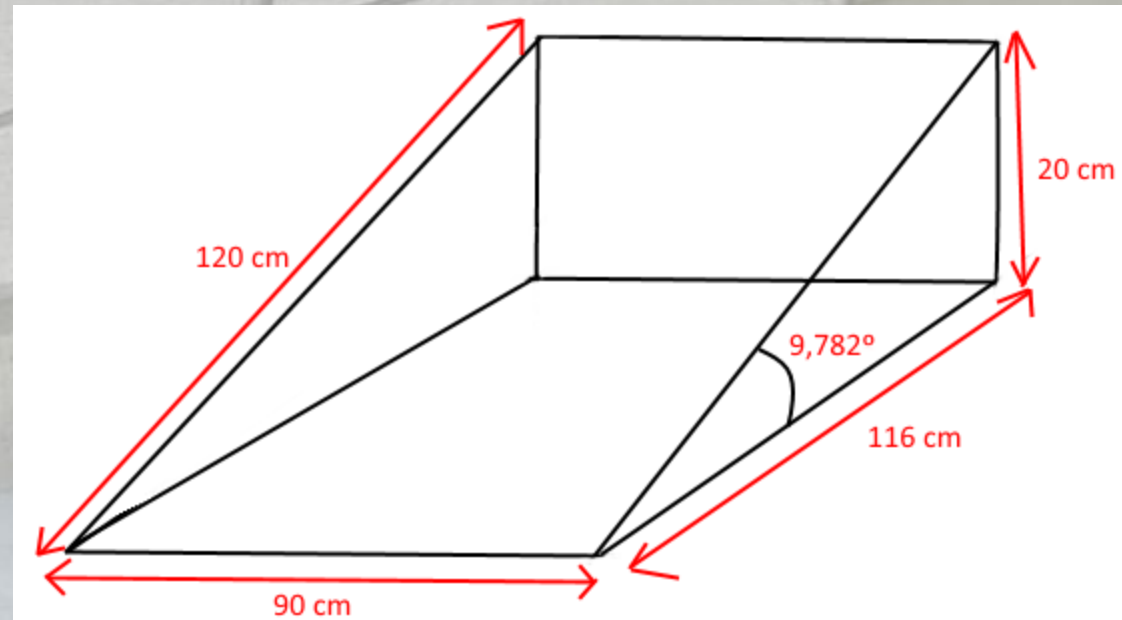
**LOCATION:** Rosalía de Castro St.  
**SITUATION:** **ILLEGAL**  
**REASON:** **WIDTH AND ANGLE**



# 2nd Ramp



**LOCATION:** Rosalía de Castro St.  
**SITUATION:** **ILLEGAL**  
**REASON:** **WIDTH AND ANGLE**



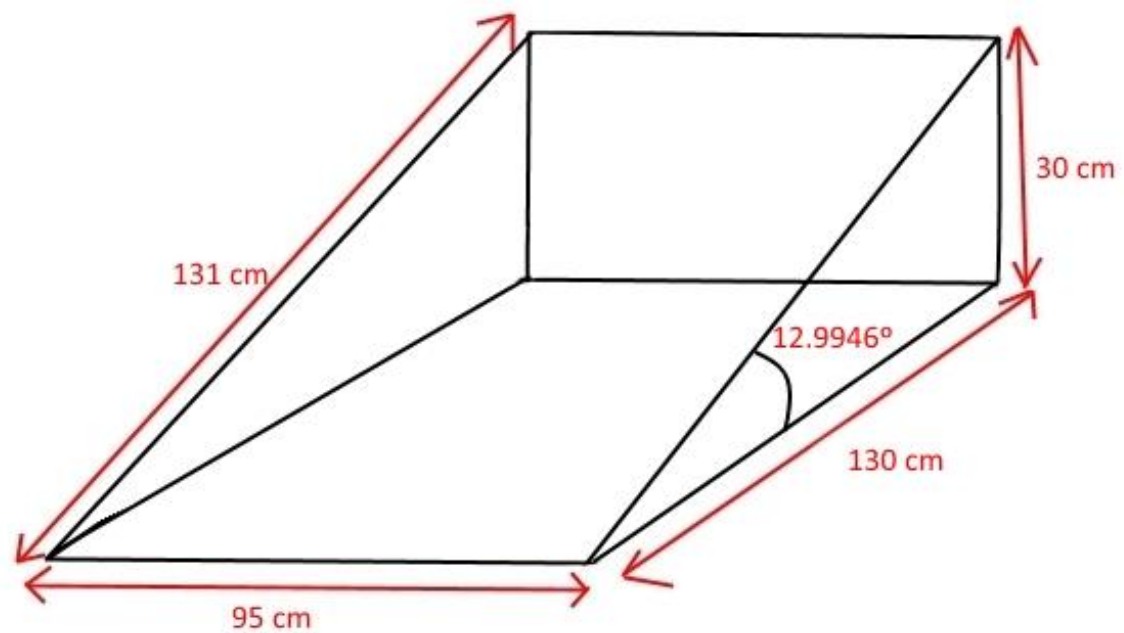
# 3rd Ramp



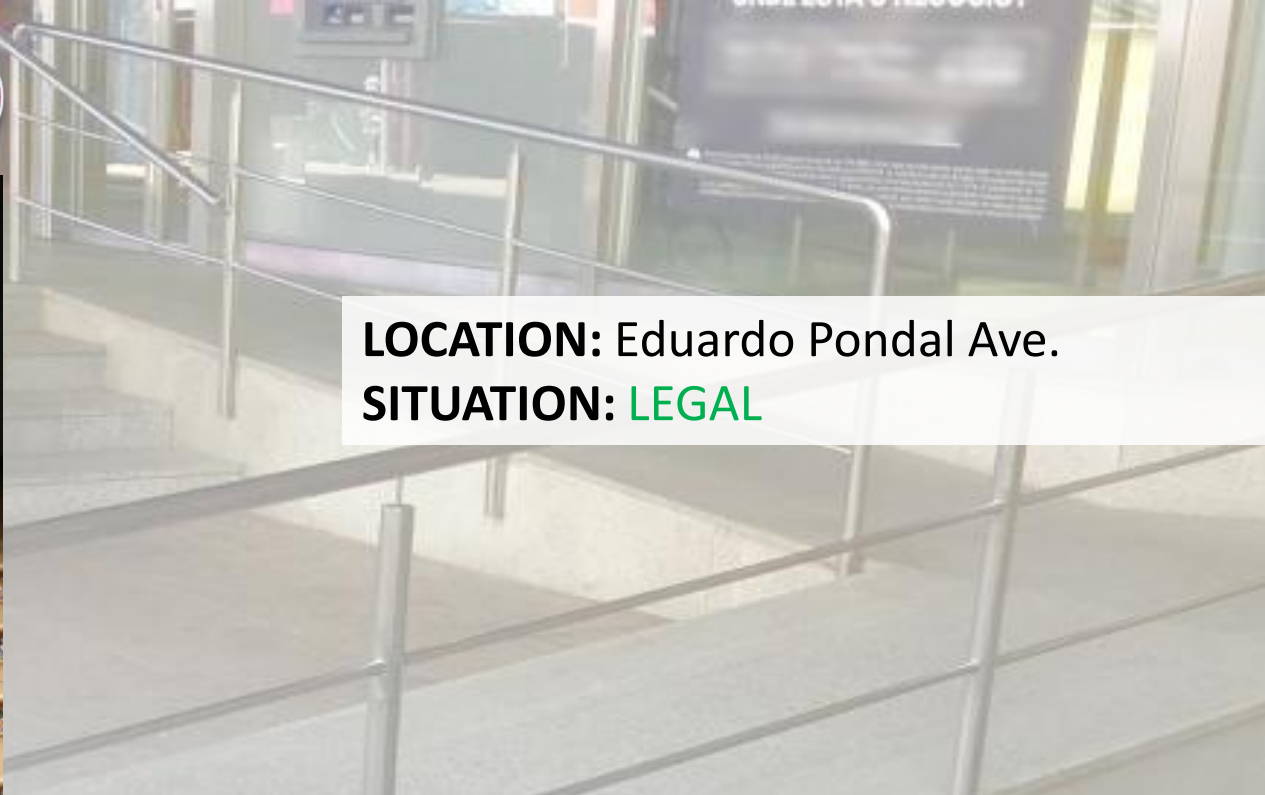
**LOCATION:** Rosalía de Castro St.

**SITUATION:** ILLEGAL

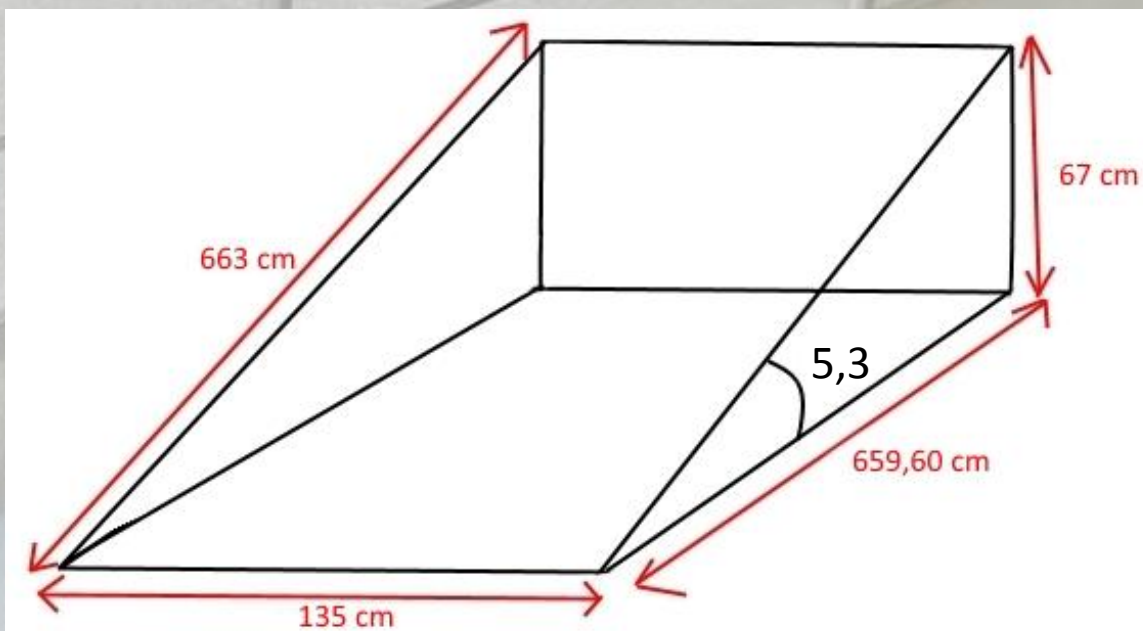
**REASON:** WIDTH AND ANGLE



# 4th Ramp



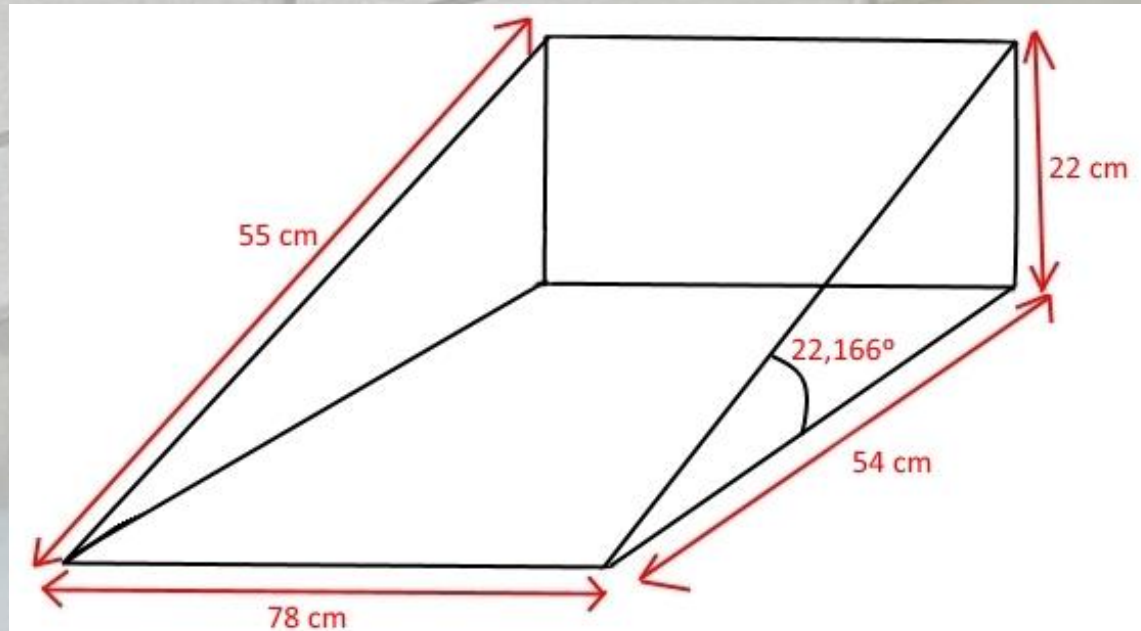
**LOCATION:** Eduardo Pondal Ave.  
**SITUATION:** LEGAL



# 5th Ramp



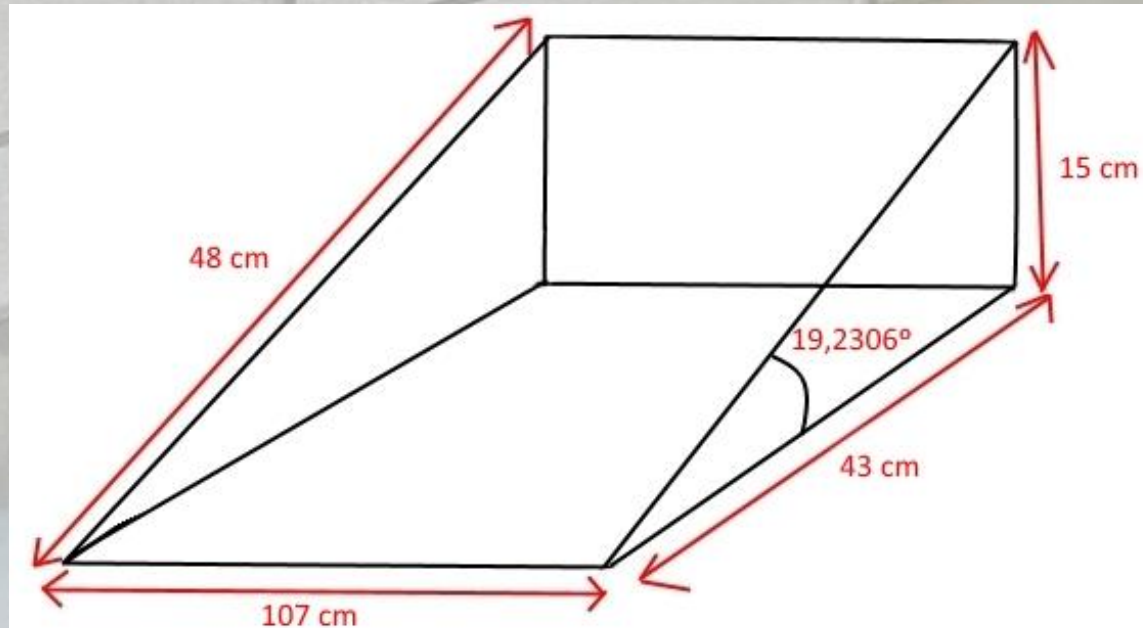
**LOCATION:** Manuel del Palacio St.  
**SITUATION:** ILLEGAL  
**REASON:** WIDTH AND ANGLE



# 6th Ramp



**LOCATION:** Manuel del Palacio St.  
**SITUATION:** ILLEGAL  
**REASON:** WIDTH AND ANGLE

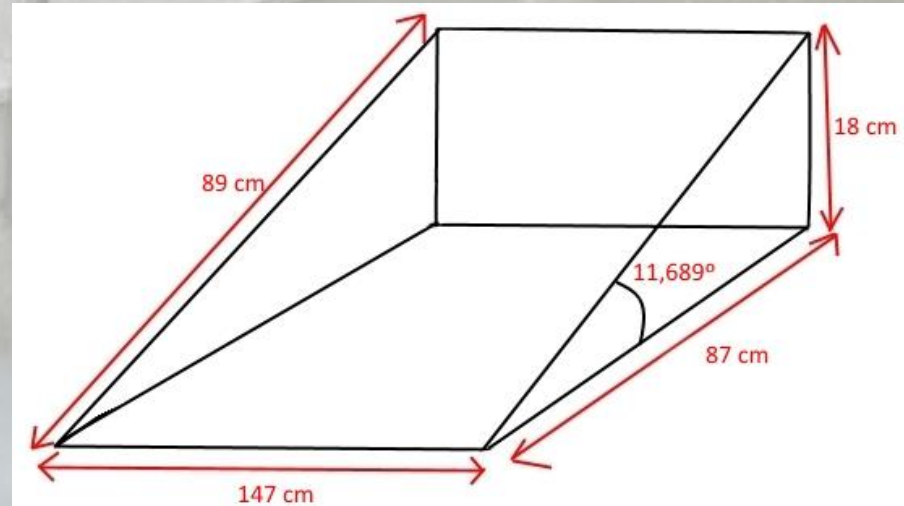




# 7th Ramp



**LOCATION:** Rosalía de Castro St.  
**SITUATION:** **ILLEGAL**  
**REASON:** **ANGLE**



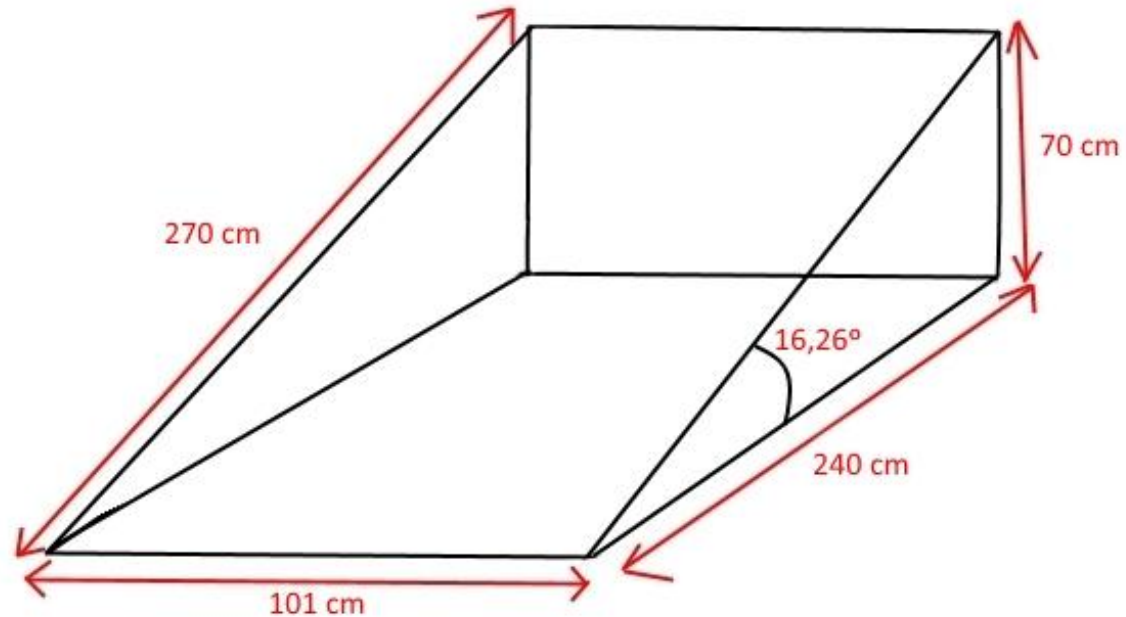
# 8th Ramp



**LOCATION:** Rosalía de Castro St.

**SITUATION:** ILLEGAL

**REASON:** WIDTH AND ANGLE



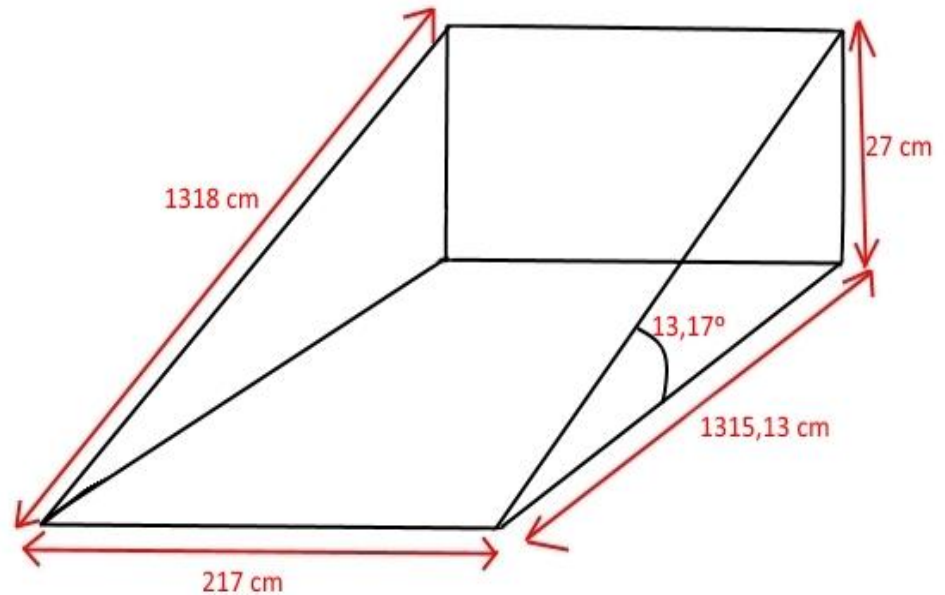
# 9th Ramp



**LOCATION:** Rosalía de Castro St.

**SITUATION:** **ILLEGAL**

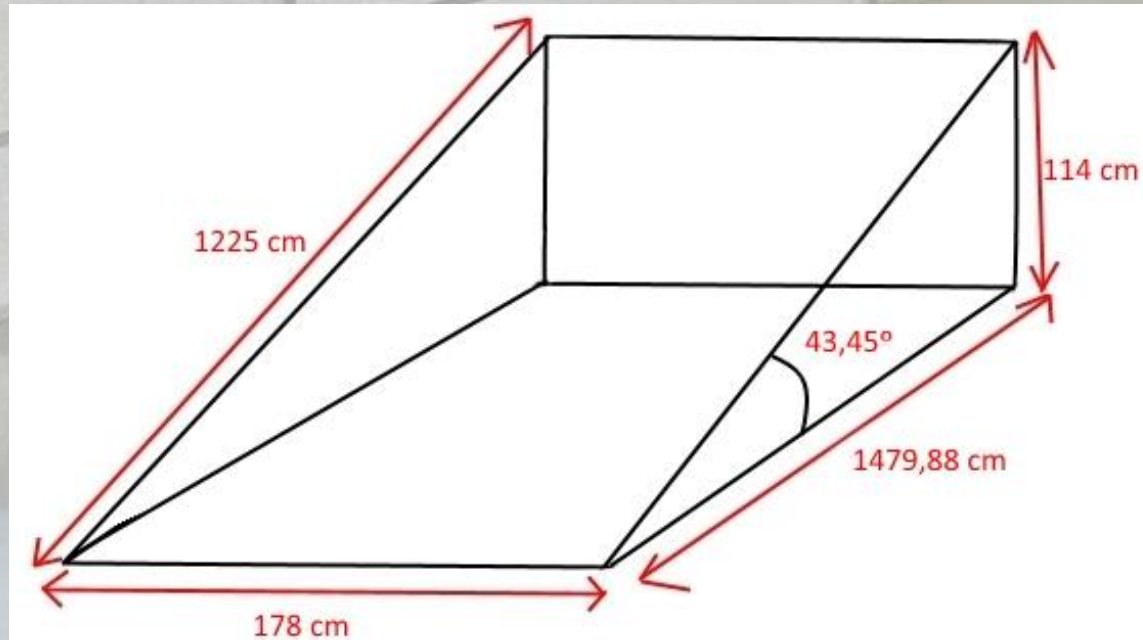
**REASON:** **ANGLE**



# 10th Ramp



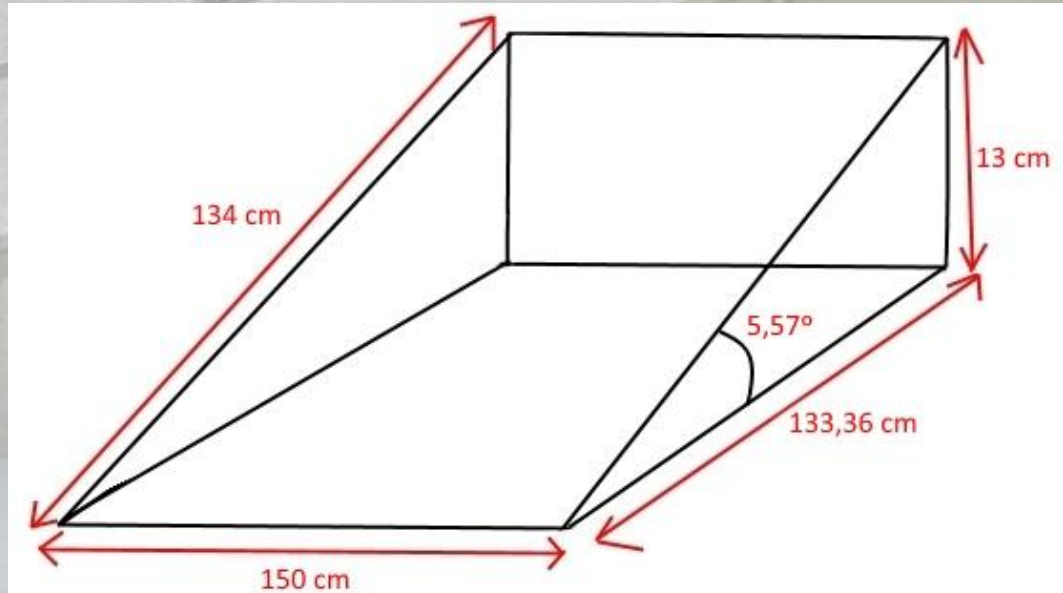
**LOCATION:** Rosalía de Castro St.  
**SITUATION:** ILLEGAL  
**REASON:** ANGLE



# 11th Ramp



**LOCATION:** Rosalía de Castro St.  
**SITUATION:** LEGAL



# 12th Ramp

**LOCATION:** Rosalía de Castro St.

**SITUATION:** **ILLEGAL**

**REASON:** **ANGLE**



# Conclusion

- Situation of the measured legal ramps

- Situation of the measured illegal ramps

The major part of the ramps are illegal: 10 of 12 (83,3%)

With these results, you can obtain your own conclusions

