



VISIT MATH



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Itinerary

- 1 Royal Theatre
- 2 Belfry
- 3 Pont de France
- 4 Delta
- 5 Confluence
- 6 Citadel



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VisitMath Tours NAMUR





ONCE UPON A TIME ...

People lived peacefully in Namur's lower town. But it was not always the case.

For many years, invaders quarrelled to take over the Citadel, the most strategic place in the city.

Namur finally got back to calm, leaving the Citadel to fall into disrepair.

But one day, rumours began to spread...

Some people claim to have heard and seen strange things happening at the Citadel, which has been uninhabited for decades.

Step 1: General Assembly

The inhabitants decide to gather at the theatre for an assembly to discuss the matter.



Built in 1824, the Théâtre Royal de Namur stands on the site of a former convent. Its façade is listed as part of Wallonia's public civil heritage.

Here is the seating capacity of the theatre:

- Orchestra Seats: 241 seats
- Orchestra Pit: 60 seats
- Boxes: 63 seats
- 1st Balcony: 120 seats
- 2nd Balcony: 142 seats
- 3rd Balcony: 97 seats
- 4th Balcony: 45 seats

A total of 384 residents gather at the theatre to attend the assembly.



What fraction of the seats in the theatre is occupied?



After the assembly, the people want to reach out to the Citadel. Afraid of going directly there, they appoint some inhabitants to go to the Belfry.

Step 2: Let the pigeons loose



The Belfry of Namur, known as "Tour Saint-Jacques", was built in 1388 as part of the city wall. It was converted into a belfry in 1746. This tower is one of the 56 belfries in Belgium and France recognized as UNESCO World Heritage Sites due to their significance in representing civic architecture in Europe and reflecting the city's historical importance and influence.



Once there, they decide to use a carrier pigeon as a pacific way to communicate.

The distance as the crow flies between the Belfry and the Citadel is 420m.

Knowing that a carrier pigeon flies at an average of 85 km/h...



How much time in seconds will the carrier pigeon take to deliver the message?

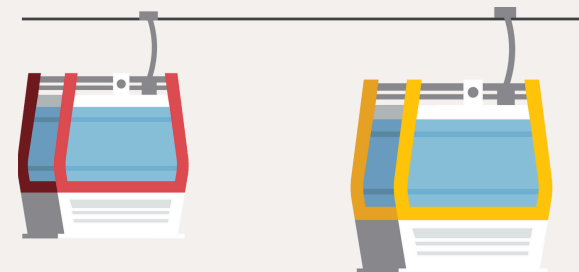


While you are waiting from an answer from the Citadel, you go to the Pont de France to have a better view of it.

Step 3: Suspicious cable car

There, you look for any suspicious movement in the Citadel.

Something grabs your attention; it's the cable car going back and forth! Nothing unusual, except you can not detect what is inside the cabin; how strange...



The cable car spans the river Sambre and overlooks the ramparts of the Citadel, landing 650 metres further on.

If the cable car travels 100 metres in 36 seconds, how long does it take to cover the 650 metres?



Now look on the right side of the Sambre; what is this strange building?

Step 4: Hidden message

On your way to the facing riverbank, you find a piece of paper.

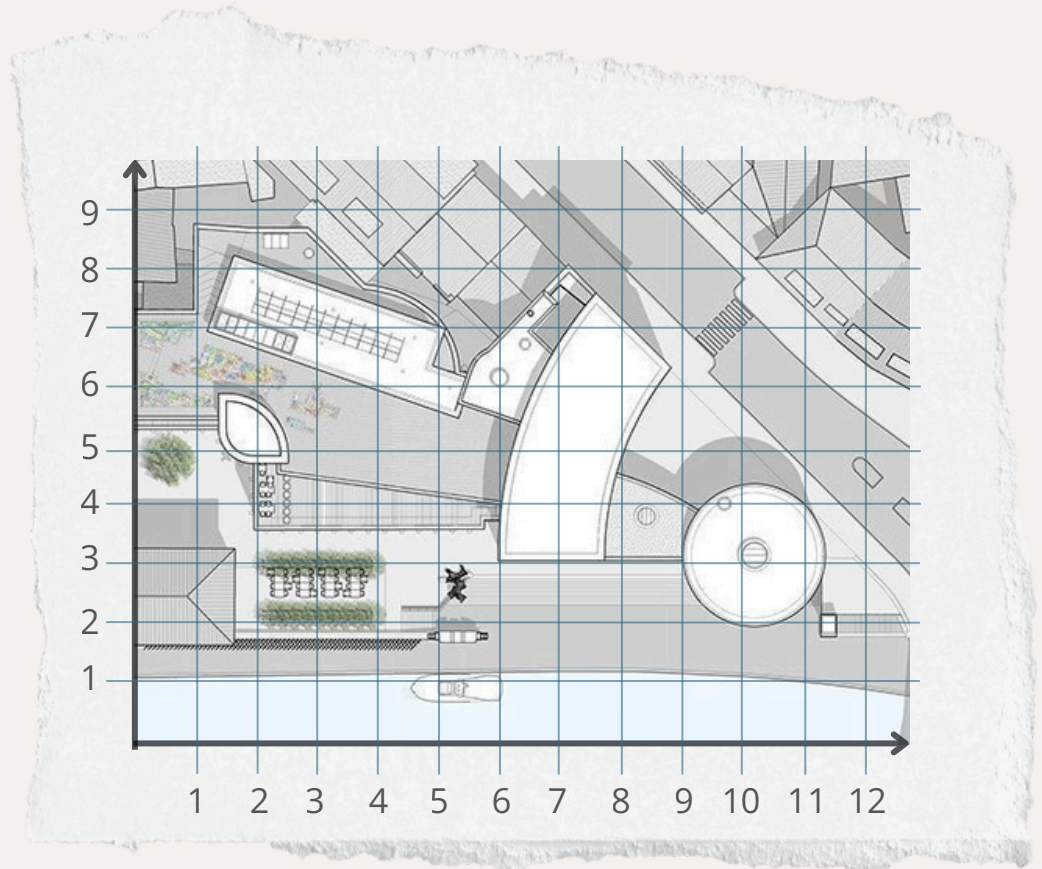
It's a top-view plan of the "Delta" building, an art centre.

It seems like there is a hidden message on it...

First, link (5;6), (5;7), (6;7) and (6;6).

Then, link (8;6), (8;7), (9;7) and (9;6).

Finally, link (5;4), (6;3), (8;3) and (9;4).



I think someone is trying to send a message; maybe there is nothing to worry about after all...



Now, you head for the confluence of the Sambre and Meuse rivers, another of the city's strategic locations.

Step 5: "Grognon"

You only stand a few meters away from the Citadel!



Situated at the foot of the Citadel, the confluence of the Sambre and Meuse rivers, also called "Le Grognon", is Namur's geographical and historical heart. The first inhabitants settled here permanently 2,000 years ago.



Its original vocation was linked to river traffic. In the second half of the 19th century, competition from the railway led to the decline of the port and the transfer of economic activities to the upper part of the town.

You have a unique and ideal view of the Citadel from the confluence of the Sambre and Meuse rivers.



The closer you get to your goal, the more stress you feel.

You decide to make your way to the Citadel with some of the other volunteers. You go up the Meuse in a small craft to avoid being spotted.

There are some constraints that you need to consider:

- The craft can carry a maximum weight of 280 kg.
- The craft can carry a maximum of four people at a time, including yourself, the captain.
- Here is information about the passengers: Alice weighs 60 kg, Bob 75 kg, Carol 80 kg, David 95 kg, Emma 55 kg and you, the captain, 85 kg.
- The captain must always be present on the craft.
- Alice and Bob don't get on at all: they should not be together on the craft at the same time.



What is the minimum number of trips required to transport all?

Describe the craft composition.



Now let's take a closer look at the Citadel.

Step 6: Nomadic journey



The Citadel of Namur, originally the castle of the Counts of Namur, is an ancient fortified castle that later became a citadel.



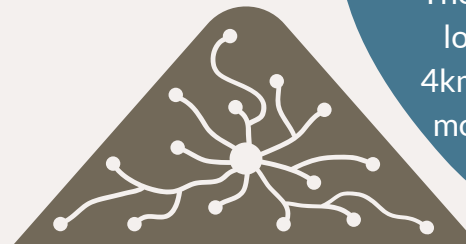
It has been a crucial European crossroads for centuries, leading to fierce competition for control. Its military history dates back to the 3rd century AD, and in the Middle Ages, it evolved from a fortified residence into a castle.

Two inhabitants, Bob and Carol, take the initiative to scout the area.

They want to unravel the mysteries that cause the inhabitants concern. To be discrete, they follow the underground passages.



Napoleon famously called the Citadel the "Anthill of Europe" due to its extensive underground passages. These galleries were originally 7km long and are now approximately 4km. They make up one of Europe's most significant citadel networks.



- Bob and Carol leave at the same time to scout the Citadel underground.
- Carol uses a bike, and her speed is 25,2km/hour. Bob runs at 8,5km/hour.
- They leave at the same time.
- Carol comes back first and is followed by Bob. Carol was gone for 6 minutes, and Bob for 12 minutes.

How many meters did Carol and Bob travel?

Excellent! 👍

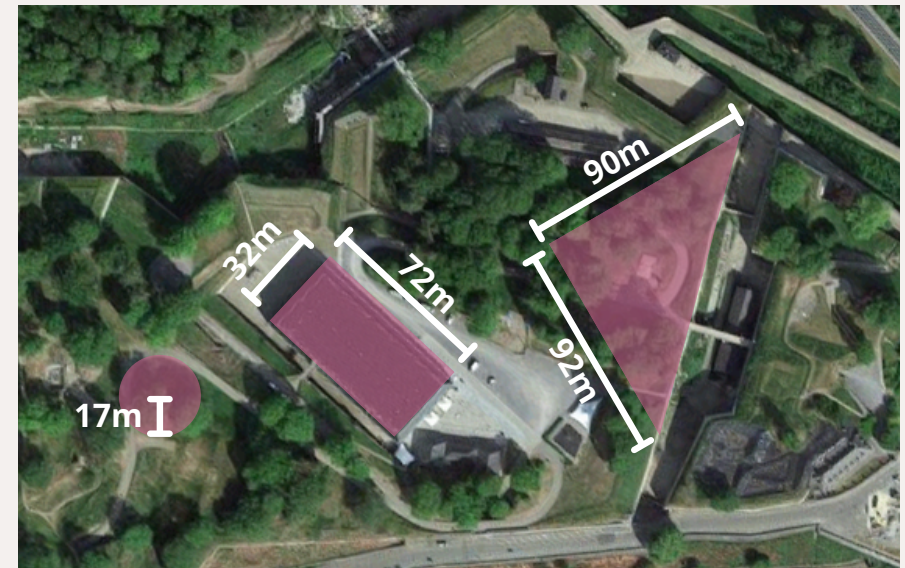
Inside the Citadel, Bob and Carol discovered a captivating scene:

Nomads, their tents glowing with light, were busily and calmly establishing their camp. The air carried the scent of campfires and the distant melody of laughter.



Contrary to dark suspicions, these nomads were not malevolent spirits nor invaders; instead, they were peaceful travellers seeking refuge in the Citadel's embrace.

Here is a plan of their provisional camp:



What is the total area of their camp?

Realizing the misunderstanding, Carol and Bob want to share their discovery with the town!

In no time at all, Carol and Bob grab their phones to share the news; they recounted their nocturnal exploration, revealing the presence of the nomadic adventurers.



Much to everyone's surprise, these nomads weren't there to haunt the Citadel but sought a temporary haven, tired from their journey.



The once mysterious movements were demystified, transforming the ancient fortress into a symbol of community and adventure.

The nomads, once considered a threatening presence, now became friendly guides, and they invite all the inhabitants to join them to celebrate together.

They are happy the inhabitants will arrive. Indeed, having rested in the Citadel, they are already planning their next journey, but need some help.



They have not decided yet on their final destination, but they already know they want to stop in three different places, labelled B, C and D before moving on to their next adventure. The distances between these landmarks are as follows:

- The distance from A (the starting point) to B is 17 km.
- The distance from B to C is 25 km.
- The distance from C to D is 39 km.

If the nomads prefer to cover equal distances each day...



What is the distance, in km, they would need to travel each day?



Grateful for the inhabitants' help, the nomad organised a big feast in the Citadel's courtyard, where townspeople and nomads alike shared stories, laughter, and a newfound sense of unity.

