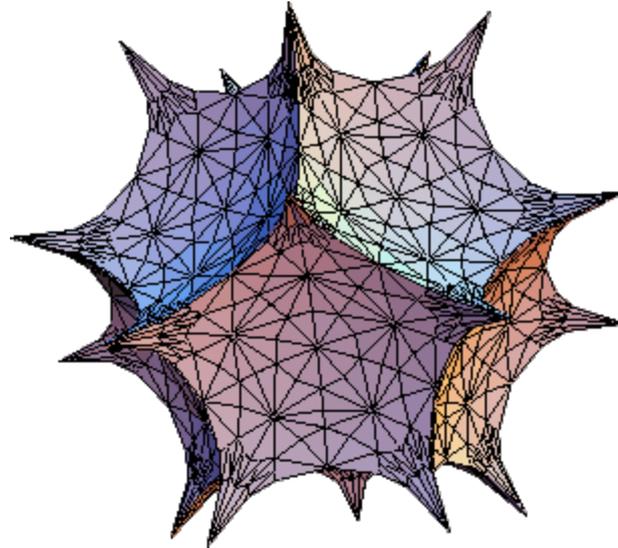


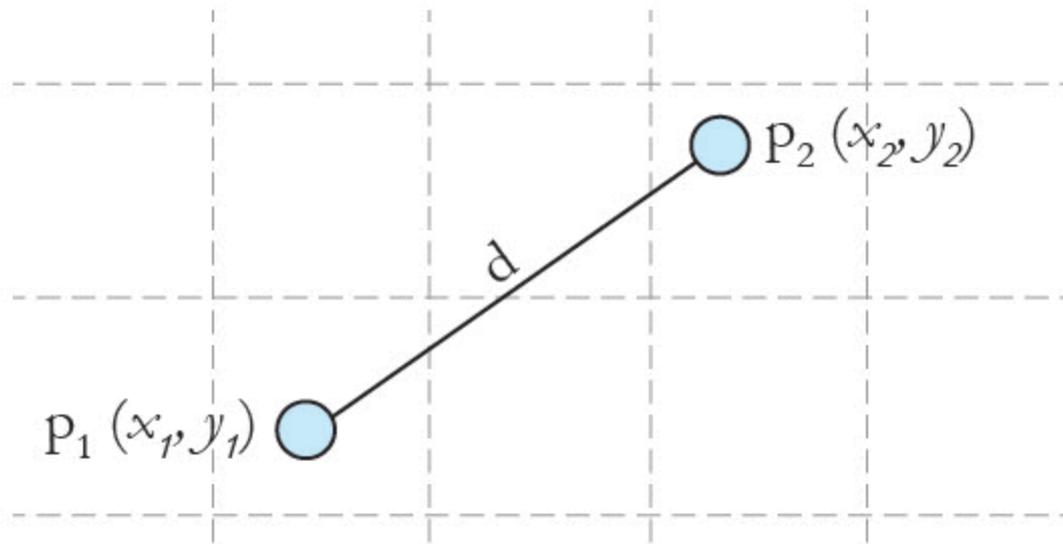
# Geometry - Part II

Feb 2<sup>nd</sup>, 2017



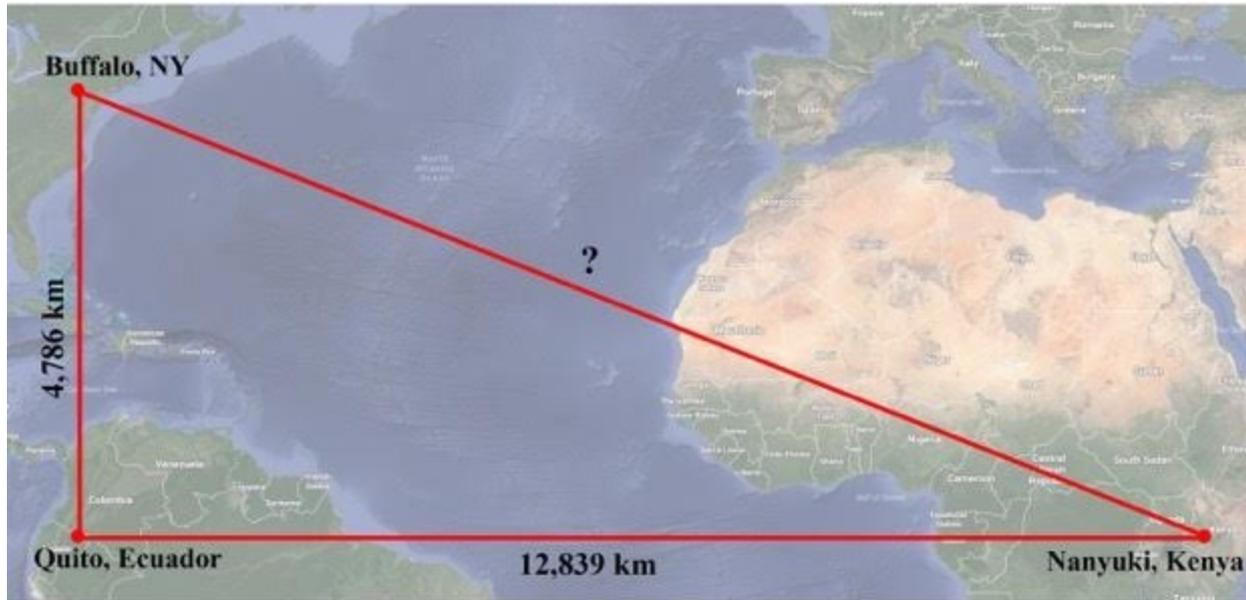
- Quickly recall some important properties of geometry that we have discussed so far.

# Euclidean distance between two points



$$\text{Euclidean distance (d)} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

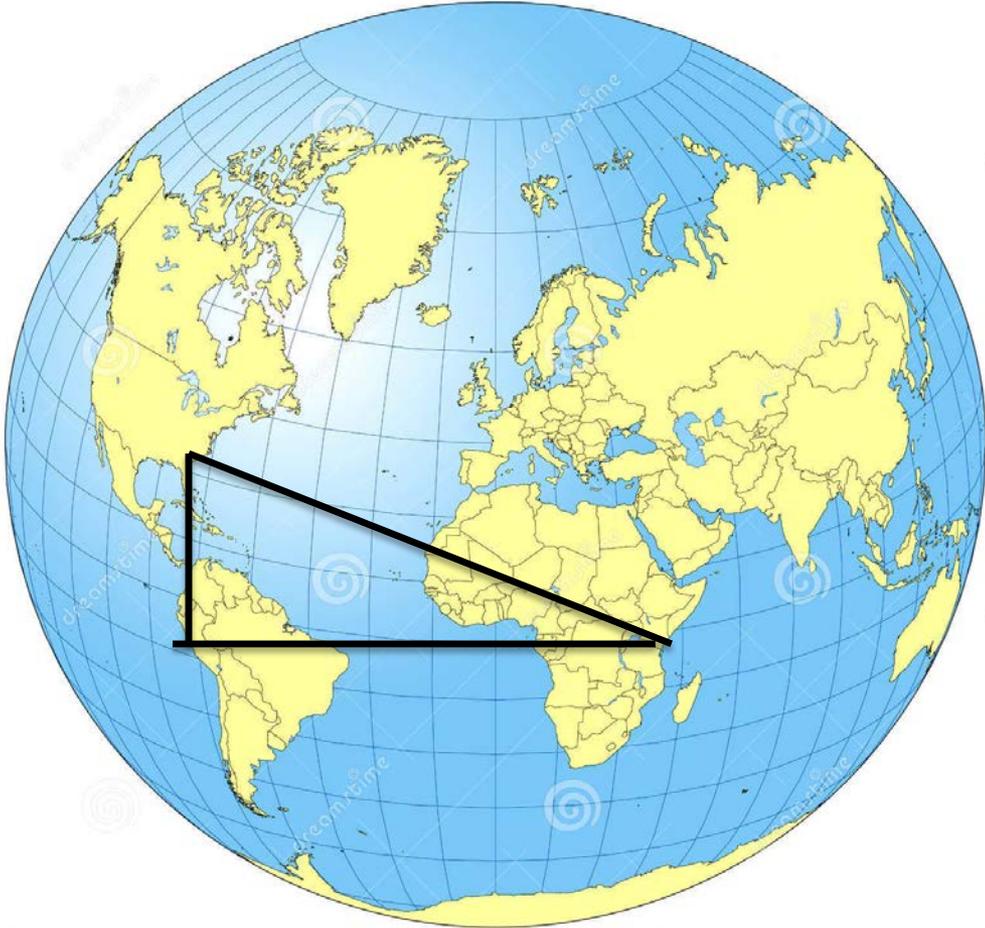
# Class exercise 1



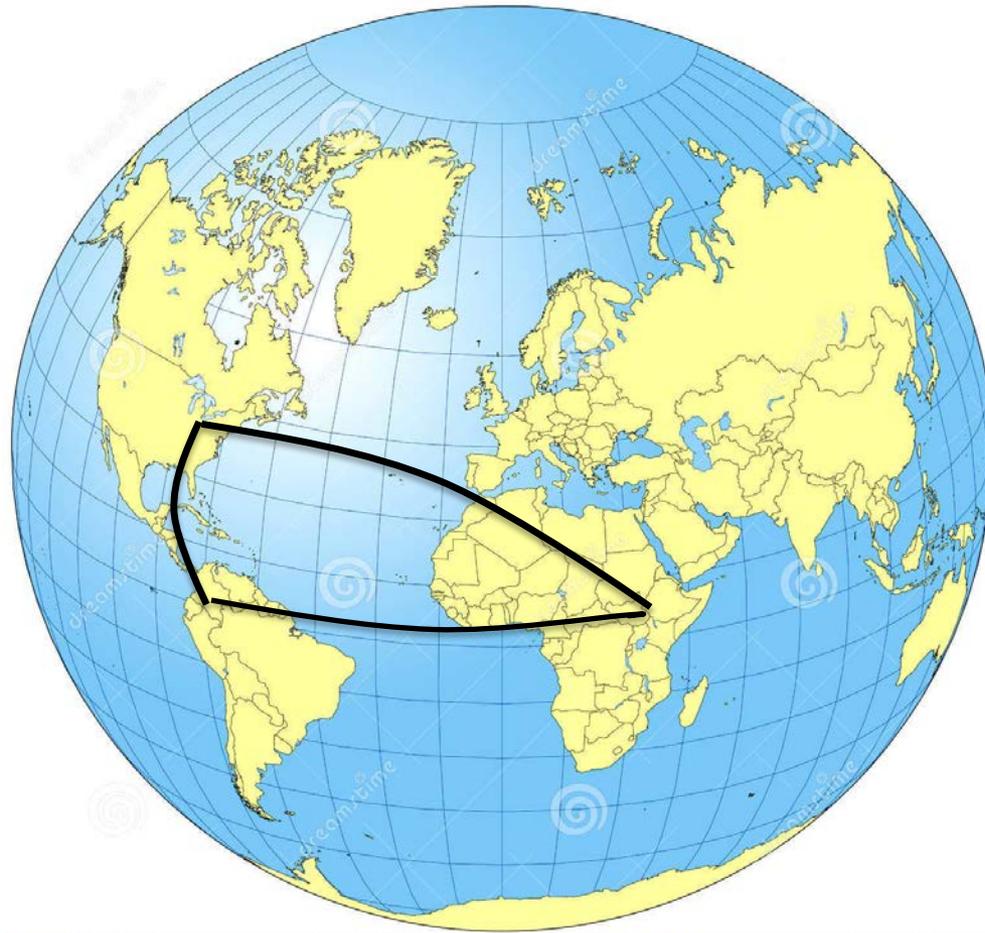
Find the distance between **Buffalo (NY, USA)** and **Nanyuki (Kenya)** using the information provided on the map.

- Compare with the real distance between these two cities (look online)?
- What might be the reason for any differences you found?

# Consider the triangle on a world map



Or, should it look like...



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- What is the sum of the interior angles in this triangle?

# Compare these two triangles



# Exercise 2



- Identify different triangles on this surface.

# Consider the following questions

- If  $S$  refers to the sum of the all the interior angles in a triangle on a sphere, what is the maximum value  $S$  can be ?
- What is the minimum value of  $S$ ?
- How many different values of  $S$  can you have?
- What do you infer from this exercise?

# History

- Carl Fredrich Gauss (1813)
- Janos Bolyai (1840s)
- Nikolai Lobachevsky (1830s)

