Secondary 2 Mathematics: Revision Map Scale

Map Scale

- A proper map has a map scale that shows the relationship between a distance on the map and the actual horizontal distance on the ground
- We can calculate the actual distance between two locations or the actual area of a place on the map based on the given map scale
- A map scale is usually represented as a ratio (e.g. 1:20000) or a fraction (e.g. 1/20000)
- If the ratio of a map is 1:20000, it means that 1 unit length on the map represents an actual distance of 20000 units on the ground

Map Scale

Example: A distance of 3 cm on a map represents an actual distance of 1.5 km.

a) Find the scale of the map in the form 1:*r*

Map Scale = 3 cm: 1.5 km

= 3 cm: 1.5 times 1000 times 100 cm (convert 1.5 km to cm)

= 1 : 50000

b) If the distance between two schools on the map is 7 cm, find the actual distance between the two schools in km

The map scale shows that 1 cm on the map represents 50000 cm on the ground. Thus, the actual distance between two schools,

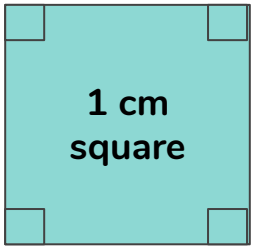
= 7 times 50000 cm

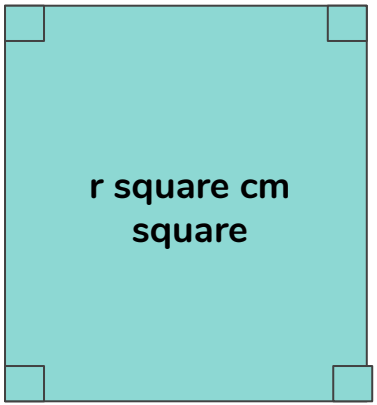
= 350000 cm

= 3.5 km

Map Scale

- When the scale of a map is 1: *r* ,a square of side 1 cm on the map represents an actual square of side r cm. Hence, area on the map : actual area = 1 cm square : r square cm square
  = 1 : r square





Map Scale

Example : The scale of a map is 1 : 30000. A rectangular piece of land is 4 cm by 2.5 cm on the map

a) Find the actual area of the land in km square

Actual length of the land = 4 times 30000 cm

= 120000 cm = 1.2 km

Actual breadth of the land = 2.5 times 30000 cm

= 75000 cm = 0.75 km

Actual area of the land = 1.2 times 0.75 = 0.9 km square

b) If the actual area of a small town is 0.6 km square, find its area on the map in cm square

Area of the town on the map = 0.6 divided 0.09 cm square

= 6 two-third cm square