

WORKING WITH MAP SCALES

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Lesson Description

In this lesson we:

- Get introduced and do questions about:
 - Number scales
 - Bar scales
 - Determining scales
 - Calculating lengths and distances when map or plan scale is known
 - Calculating scales when distances are known



Summary

- Number Scale such as 1:20 000 means that 1 unit on the map represents 20 000 units in real life.
- These units can be mm, cm, m or km.
- Bar scales are presented as a picture bar. With thus use of a ruler, one can determine how many centimetres or millimetres represent a certain number of kilometres.



- Remember that when maps change size, the number scales is badly effected.





Test Yourself

Question 1

In which direction would you be facing if you rotate 90 degrees clockwise from North?

- A South
- B East
- C West
- D North West

Question 2

In which direction would you be facing if you rotate 225 degrees anti-clockwise from East?

- A North West
- B South
- C South West
- D South East

Question 3

Consider a map with a scale of 1 : 250 000. Determine the actual distance (**in km**) if the distance on a map is 55mm.

- A 13 750 000km
- B 1 375 000km
- C 13 750km
- D 13,750km

Question 4

Consider a map with a scale of 1 : 250 000. What is the distance on the map (**in cm**) if the actual distance between two points is 8km?

- A $\frac{1}{250\,000}$
- B 0,000 032
- C 0,032
- D 3,2

Question 5

Consider a map with a scale of 1:50 000. How far is the actual distance (in km) in real life if the distance on a map is 10cm?

- A 500 000
- B 5 000
- C 50
- D 5



Improve your Skills

Question 1

In which direction will you be facing if you rotate:

- 1.1 270° clockwise from North East?
- 1.2 315° anti-clockwise from East?

Question 2

Consider a map with a scale of 1 : 250 000.

- 2.1 What does this scale mean or indicate?
- 2.2 With the use of this scale, copy and complete the following table:

MAP	REAL LIFE
35 cm	??? km
??? cm	345 km
132 mm	??? km
??? mm	32 456 m
19,5 cm	??? m
??? mm	79,5 km

Question 3

Consider the map below:



notes for...

- 3.1 In which direction would you be travelling if you were driving from:
- 3.1.1 Beaufort West to Bloemfontein
 - 3.1.2 Queenstown to East London
- 3.2 Consider both the scale and the number scale at the bottom right of the map.
- 3.2.1 Using the **picture scale**, determine the direct distance (as if you were flying by plane), rounded to the nearest kilometre, between East London and Bloemfontein. Show all your working.
 - 3.2.2 Using the **number scale**, determine the direct distance (as if you were flying by plane), rounded to the nearest kilometre, between East London and Bloemfontein. Show all your working.
 - 3.2.3 You will notice your answers will be different. Give a reason for this difference.

Question 4



- 4.1
- 4.1.1 In the good old days, SAA use to fly from Durban to East London to Port Elizabeth and then onto Cape Town; instead of flying directly from Durban to Cape Town. How far would the plane fly between East London and Port Elizabeth?
 - 4.1.2 Determine the distance a Boeing 737 would fly if it took off from Port Elizabeth and landed at Bloemfontein.

notes for...

- 4.1.3 A light little Cessena plane carrying 2 business men takes off at Knysna and heads to Bloemfontein where they have a meeting. After flying 320km, the plane loses stability and the pilot needs to make an emergency landing. Presuming each town has a little airport, determine which town the pilot needs to request landing rights from. Show your working.
- 4.2 It is believed the coastline between Knysna and Port Shepstone is stunning. Mr. Jbhfbjhre takes his little petrol-powered motor boat and cruises along this route.
- 4.2.1 Determine the length of this coastline.
- 4.2.2 If the motorboat uses a litre of petrol for every 4,5km travelled, determine how many litres of petrol is used.
- 4.2.3 How much will this petrol cost if a litre of petrol costs R9,97 per litre.